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CHARLIEU:
THE FIRST AMBULATORY COLONNADE?

ELIZABETH R. SUNDERLAND

THE HISTORY of mediaeval architecture on the basis of standing buildings has long since been written. On the other hand, due to the destruction of many of the key monuments, so little is known of the actual development of many of the forms of mediaeval architecture that some seem to have sprung into being full grown as did Athena out of the aching head of Zeus.

For example, we recognize the ambulatory of Romanesque times, giving as it does a view through a single line of lofty columns into the choir and nave, as one of the most imaginative inventions of mediaeval genius. Through what precise stages the ambulatory passed in its development, however, we have not known. We have assumed that it was derived from the Carolingian semi-subterranean crypt passageway. Archaeological research has revealed part of the history in showing that the early tenth century church of St. Martin at Tours, because of troubles with water seepage from the Loire, had raised the passageway to the main level of the building.[1] Whether or not an arcade existed between the apse and the passageway at Tours has never been clearly demonstrated, but Professor Carl Hersey of the University of Rochester is now inclined to think that arches supported on piers of square section could have existed at St. Martin.[2] No monument, however, dating from the tenth century, seems to be known in which the ambulatory arcade was supported on columns, thus making the passageway an integral part of the space of the church. In the eleventh century, on the other hand, so many ambulatories appeared with the arcades supported on columns that it is obvious that the idea must have been invented in the tenth century.

At Charlieu in ancient Burgundy are the exposed foundations of a church rebuilt in the tenth century, a study of which may shed some light on the problem of the development of the ambulatory.

This monastery was founded in 872 A.D. and, as I have shown elsewhere,[3] the first church on the site was probably constructed very shortly after that date in a late Carolingian style of a type found today only in the Touraine near Amboise. The church was single-naved and wooden-roofed and was characterized by a typically Carolingian semi-subterranean passageway around the vaulted apse. The passageway gave access to an axial absidiole and presumably also to a relic chamber below the apse. The exterior of the building was remarkable for the round buttresses decorating the walls and for the slender tower-like forms flanking the angles of the façade and the apse.

Cluny was given control of the abbey in 932 A.D. The foundations still existing at Charlieu indicate that the original Carolingian church was rebuilt in the tenth century and probably by the Cluniacs.[4] (Fig. 2) This rebuilt church gave way in the eleventh century to a church begun probably shortly after the year 1000 A.D. by Saint Odilo, abbot of Cluny from 994 A.D. to 1049 A.D.[5]

In rebuilding the Carolingian structure the Cluniacs stripped the round buttresses off the walls and built rectangular ones both inside and outside the old walls to give a complete new system of wall supports closer together than the former exterior semi-circular buttresses (Fig. 1).[6] In addition, and as part of the system, the Cluniacs built two lines of piers, corresponding in position to the wall supports, inside the church throughout its entire length, dividing the building into nave and aisles. All this must have been done with the object of vaulting the structure. In addition a great rectangular tower was raised, following the Cluniac system, over the center of the building.[7]

The Carolingian church, as explained above, was characterized by a semi-subterranean passageway around the apse. This passageway, according to Carolingian practice, opened onto a crypt chamber below the apse, and the floor of the apse was necessarily raised to give head-room for the relic-space below. A flight of steps must have given entrance to the apse from the nave. The passageway around the apse, being on a different level, must have been separated from the apsidal sanctuary by a solid wall.

A careful examination of the remaining foundations of the east end of the church reveals that, although the outside walls of the old passageway were reused, the apse itself and the main eastern cross-wall were torn down. The destruction of the old eastern wall, and therefore the apse

ELIZABETH R. SUNDERLAND *is on leave from Duke University on a Guggenheim fellowship to excavate the ruins of Charlieu and reconstruct the abbey church on paper. She has been decorated by the French government for her work at this site.*

attached to it, is demonstrated by the fact that the foundations of the easternmost nave piers of the rebuilding campaign are constructed partly across the remaining foundations of the original eastern crosswall (Figs. 2 and 3).

But what happened subsequently as far as the apse was concerned? If the old one was destroyed, a new one must have been built in its place. Churches of the tenth or early eleventh century, divided into nave and aisles, invariably, as far as the writer knows, had apses (covered by a semi-dome if the plan of the apse was semi-circular as was the case at Charlieu) of the same width or less than the nave of the building. The new pier foundations which indicate the width of the new nave stop exactly in front of the old semi-circle of the Carolingian apse (Fig. 2). If one tries to assume that the old apse was never rebuilt, one is faced with the fact that the lines of piers separating the nave from the aisles stop in front of a great semi-circular space comprising the whole width of the building, nave and aisles included. Such an arrangement seems to be unknown in the period under discussion.[8] The apse, though the most important part of the building because it contained the high altar, had a width no greater than that of the nave. The huge semi-circular space must have been reduced in some way to permit an apse of normal width. Hence, though the position of the easternmost pier foundations of the nave make it seem unlikely that the old apse was rebuilt with a solid wall, it must have been rebuilt in some fashion. The one solution that mediaeval architecture seems to offer in such a case is that of an open arcade furnishing the support for the upper walls and the semi-dome of the apse. This provides an apse which is open below and solid (except for the windows, if they exist) above. But what sort of an arcade could have been built? There is no evidence of a line of pier foundations following the curve of the old apse. Therefore it seems that the idea of arches on piers must be eliminated. The next possible solution is a line of columns supporting the arches of the arcade. With this thought there comes to mind the series of columns, complete with their original bases and superb archaic sculptured capitals and joined in pairs by their original impost blocks, which is situated between the east walk of the cloister and the chapter-house at Charlieu (Fig. 4). Elsewhere I have shown that this colonnade, often called the *claire-voie*, is reused and that its parts probably come from the tenth century reconstruction of the Carolingian church.[9]

To repeat again, the columns of the arcade are joined in pairs by their original impost blocks. The columns of each pair stand, therefore, the same distance apart in their new location as in their original one. An examination of the wall in which they are now found proves that this arrangement is not accidental. Clearly demonstrable *sur place* is the fact that those who reused the columns even reduced the thickness of the chapter-house wall in order to maintain the relationships of the columns.

Now let us return to an examination of the church ruins. Measurements of the thickness of the wall foundations of the Carolingian apse reveal that the old sanctuary had a wall of exactly the proper thickness for the paired columns of the chapter-house *claire-voie*. A further coincidence appears if one attempts to make a graphic reconstruction of the east end of the tenth century church, using the paired columns of the colonnade. Assuming six pairs of columns (Fig. 5), supporting seven arches which is the normal number according to the evidence of eleventh century ambulatories, the distance between the pairs of columns on the inside of the apse curve is exactly the same as that which occurs between the pairs of the chapter-house *claire-voie*. Five pairs of columns with capitals planned to be free-standing still exist in the old colonnade. (The capitals of the pairs at the ends of the arcade being carved on two faces only, of the possible four faces, obviously come from doorways.) Only one pair of the required six is lacking. A close examination of the treatment of the ends of the arcade makes it clear that the builders did everything possible to use the maximum number of pairs of columns. Columns are used against the wall at the extremities of the arcade, contrary to the practice of the time,[10] and extra length for the colonnade was obtained by actually cutting into the north and south walls of the chapter-house.

All these coincidences are so striking that it seems very possible that the five pairs of columns of the chapter-house arcade which were originally planned to be free-standing once formed the semi-circle of columns around the apse of the tenth century church. One is even strongly tempted to think that the low wall on which the colonnade now stands repeats the height of a former low wall on which the columns stood in the ambulatory. Such a wall as a base for the colonnade occurs frequently in ambulatories of the eleventh century.

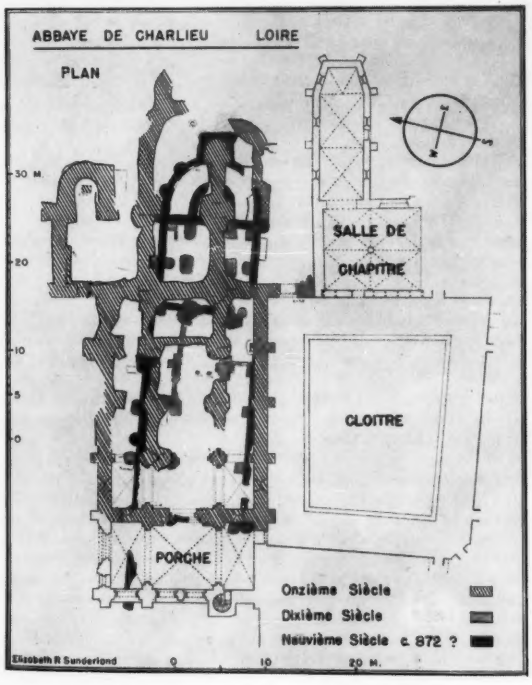
Thus Cluny may actually have constructed a true ambulatory colonnade at Charlieu in the tenth century, a colonnade which could very well have been the first of its kind. The use of columns in pairs is certainly a logical solution for the problem of supporting the wall above.

The idea of paired columns in ambulatories, however, apparently had little success, for extremely few examples can be cited. Perhaps the perspective views seemed too confusing. One can acquire some idea of the probable effect of the little ambulatory of Charlieu by visiting the church at Bois-Sainte-Marie not far away in the Brionnais. The church, unfortunately radically restored and rebuilt, preserves a curiously low ambulatory, not much wider or higher than that of Charlieu, which has retained enough of its original arrangement for the imaginative visitor to ascertain very well the effect of views through an arcade supported on columns in pairs.

The Cluniacs never seem to have used the arrangement of Charlieu again. As far as the order is concerned there

FIG. 1. View of the church ruins, looking west, Charlieu. (Author)

FIG. 2. Plan of the ruins, Charlieu. (Author)



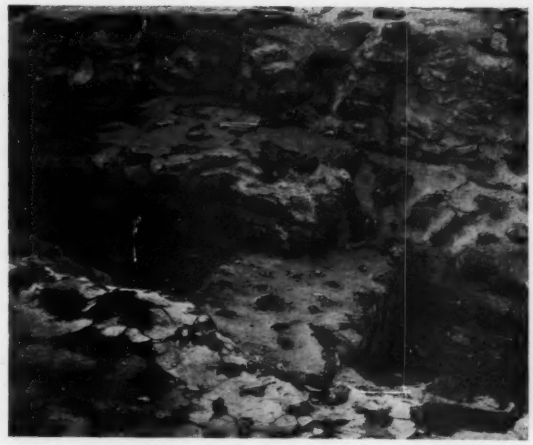


FIG. 3. View of the tenth century pier constructed partially over foundations of ninth century cross wall, Charlieu. (Author)

FIG. 4. *Claire-voie* looking north, Charlieu. (Author)

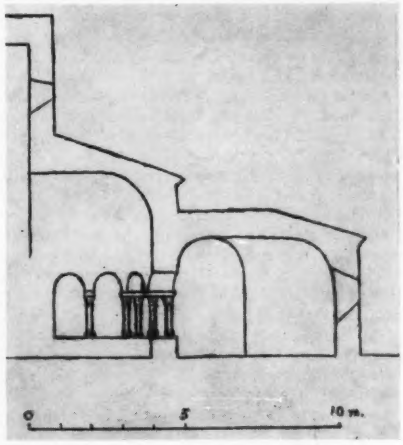


FIG. 5. Reconstruction sketch of the tenth century ambulatory, Charlieu. (Author)

seems to have been little interest in ambulatories until a much later time. The second church built at Cluny under Abbot Mayeul between 954 A.D. and 981 A.D. introduced a plan with apses in echelon which was repeated with minor variations for more than a century, not only in the churches of the Cluniac Order but in numberless other churches as well.

Perhaps the very fact that the ambulatory of Charlieu seems unique in the Cluniac system can give an indication of its date. Charlieu was taken over by Cluny during the abbacy of Saint Odo, who came from St. Martin of Tours. Odo, having lived with the ambulatory of the church of St. Martin could very easily think of reconstructing the semi-subterranean passageway of Charlieu in accordance with the arrangement at Tours. To Odo then would be due the brilliant idea of using paired columns in place of the square piers of St. Martin—the idea which, by eliminating the pier, made possible the development of the final form of the Romanesque ambulatory, with its line of single columns.

In any case, considering the wide-spread adoption of the plan with apses in echelon following the construction of Cluny II, even to the eleventh century church at Charlieu, it is difficult to think that the Carolingian church at Charlieu was rebuilt with an ambulatory after the second church at Cluny was begun in 954 A.D.

On the other hand, if one admits the little ambulatory of Charlieu to be the work of Saint Odo, and therefore built shortly after 932 A.D., one must also admit the existence of a completely vaulted church in the Cluniac Order before the second church at Cluny took form. The reconstruction of Charlieu was clearly done all at once. The ambulatory cannot be separated in time from the changes made to vault the church.

DUKE UNIVERSITY

1. Carl Hersey, "The Church of St. Martin at Tours," *Art Bulletin*, XXIV, 1942.

2. Dr. Hersey was kind enough to reply to my question about St. Martin in such a complete manner that I quote his letter (of Dec. 17, 1952) at length:

"You ask for my present opinion on the problem of an ambulatory arcade in the early tenth century church of Saint-Martin. I originally adopted the conservative opinion that the apsidal wall was solid except for a fenestella, but I am now of the opinion that an arcade, probably supported on piers of square section, separated the ambulatory from the choir.

"Of course there isn't a scrap of material evidence to go on. The famous statement of St. Odo, which I quote on page 20 of my article, refers probably to the nave arcade, although Abbé Plat thinks it indicates an apsidal arcade. It is largely because of the three arches, presumably on piers, that appear slightly earlier in the curving corridor of the crypt of Giselbert at Chartres of 858 and in the ground-level crypt of Saint-Aphrodise de Béziers (c. 900) that I now believe that a similar motif occurred at Saint-Martin. If arcades were considered structurally safe at crypt level at Chartres, where the support of the upper level required sturdy construction, they would certainly be safe and feasible at ground level at Saint-Martin. It is all conjecture, of course, based on analogy, feasibility, and functional and aesthetic desirability, but that is all there is to go on and I tentatively accept arcades."

3. E. R. Sunderland, "A Late Carolingian Church at Charlieu in Burgundy," *Journal of the Society of Architectural Historians*, Dec. 1950, Vol. IX, No. 4, pp. 3–9, and "Une église de la dernière période de l'art carolingien à Charlieu," *Bulletin de la Diana*, Tome XXXI, No. 3, 1951.

4. In favor of the idea that the Cluniacs were responsible for the reconstruction are the following considerations:

a) The lapse of time was great enough to account for a complete change in masonry style. This can hardly be less than fifty years and the change is more likely to occur in a longer period of time. Sixty years elapsed between the founding of Charlieu in 872 A.D. and its acquisition by Cluny in 932 A.D.

b) At the same time that the church was rebuilt a narthex was constructed (the masonry is exactly the same as that of the new parts of the church) against the old Carolingian façade in a manner as to connect directly with the west cloister walk. Such an arrangement, which permitted a procession of the monks to pass from the cloister directly into the Galilee and then into the church, seems to have existed in connection with the second church of Cluny (954–981 A.D.) in the time of Abbot Odilo (994–1049 A.D.) and was repeated at Charlieu in connection with the eleventh century church when the twelfth century porch was added to the structure. There is insufficient data concerning the plans of tenth century Cluniac monasteries to state that this is a "Cluniac" arrangement, but its repetition at Charlieu would make it seem possible that such is the case. Of course this argumentation would imply that the cloister at Charlieu was rebuilt at the same time as the church to provide for the opening into the narthex. This seems very probable from the type of window openings and masonry existing in the south and west walls of the cloister.

c) A great rectangular tower, in accordance with the Cluniac system popularized by the second church of Cluny (954–981 A.D.) was raised over the center of the building.

d) A new order taking over an old monastery would naturally want to reconstruct the buildings to suit its customs.

5. E. R. Sunderland, "The History and Architecture of the Church of St. Fortunatus at Charlieu in Burgundy," *Art Bulletin*, March 1939, Vol. XXI, pp. 61–88.

6. See Figures 3 & 4 in E. R. Sunderland, "A Late Carolingian Church," *op. cit.*

7. The lower parts of the two western compound piers, faced in cut stone, of the four which once supported the tower are clearly visible among the foundations at Charlieu (Figs. 1 and 2)

8. A later example which may seem to be an exception to this statement is the church of Saint-Guillem-le-Désert (Herault) which was subjected c. 1076 A.D. to a strange reconstruction resulting in an apse wider than the nave. In this case, however, the old east wall was maintained (even to the little apses which terminate the aisles) and this furnishes the abutment for the new apse. But even here the new apse does not comprise the whole width of the nave and the aisles, but only the width of the nave and half that of the aisles.

9. E. R. Sunderland, "The Daniel Relief and Cluniac Sculpture of the Tenth Century at Charlieu in Burgundy," *Speculum*, Jan. 1946, Vol. XXI, No. 1, pp. 42–48.

10. There is general agreement among authorities that the colonnade in its present form dates from the time of Saint Odilo, abbot of Cluny from 994 A.D. to 1049 A.D. (See E. R. Sunderland, "The Church of St. Fortunatus," *op. cit.*). Prior to the middle of the eleventh century it was the usual practice to carry an arch directly out of a wall without supporting columns, and this was in fact done here on each side of the doorway which originally opened through the arcaded wall. (The present door is a later construction.) The north pier of the original door with its old impost block is still clearly visible and shows the normal arrangement for arches springing from walls in the period of the first half of the eleventh century.

HENRY ADAMS AND HENRY HOBSON RICHARDSON

ERNST SCHEYER

HENRY ADAMS' INTEREST in the visual arts contributed vastly to his writing on history, that of his own time in *The Education of Henry Adams* and that of the past in *Mont-Saint-Michel and Chartres*. Even his chiefly political *History of the United States during the Administration of Jefferson and Madison* gave wider scope to the arts of this period than any other publication of this kind.

This vital interest in the arts made Adams a patron of the contemporary American scene. He gave commissions to its most outstanding and most representative artists. The monument to the memory of his wife in Rock Creek Cemetery in Washington by Augustus Saint-Gaudens in the conception of which Adams had a decisive share, has emerged as one of the finest works of American "idealistic" sculpture in an otherwise very materialistic period. Adams also influenced profoundly the aesthetics of one of the leading artists of the second part of the nineteenth century, John La Farge, painter, designer of stained glass and critic with whom he travelled to Japan and the South Seas and who instructed him in watercolor. The three men formed one of the most unified "circles" of art interest existing in the United States before the turn of the century.

The architectural setting for this "circle"—Adams called it a "generation"—was the Hay-Adams house in Washington built for him and the later Secretary of State by Henry Hobson Richardson. The architect was an exact contemporary of Adams, both were born in 1838. He had also been in the same class with Adams at Harvard, that of '58. But whereas we claimed Adams as the centre of the "circle," at least in the direct dealings of the two artists with their patron, Richardson remained by his character and early death more on the periphery of it, keeping in artistic questions an unyielding independence.

It is the object of this article to give a record of the relationship between the historian and the architect based on Adams' writings and augmented by references to Richardson's personality and art by the two other members of Adams' Washington art circle, John La Farge and Augustus Saint-Gaudens. These passages add insufficiently known information to the history of Richardson's Trinity Church, Boston, and the Hay-Adams House.

Adams already felt the independence of Richardson during his college years. Reviewing the list of distinguished names in the Harvard College catalogue for the years 1854-61, he has this to say in the *Education:*

> Certainly Adams made no acquaintance there that he valued in after life so much as Richardson, but still more certainly the college relation had little to do with the later friendship. Life is a narrow valley and the roads run close together. Adams would have attached himself to Richardson in any case, as he attached himself to John La Farge or Augustus Saint-Gaudens or Clarence King or John Hay, none of them were at Harvard College.[1]

The college years over, Adams and Richardson met again in Paris. Adams came there for an occasional visit from London, where he served as secretary to his father, then minister to England. That was in the early sixties during the Civil War but their meetings seemed to have been more devoted to the pleasures of youth than to serious discussions on architecture. We assume this from a passage in the *Education:*

> As often as he could, Adams ran over to Paris, for sunshine, and there always sought out Richardson in his attic in the Rue du Bac, or wherever he lived and they went off to dine at the Palais Royal, and talk of whatever interested the students of the Beaux Arts. Richardson too had much to say, but had not seized his style. Adams caught very little of what lay in his mind and the less because to Adams everything French was bad except the restaurants, while the continuous life in England made French art seem worst of all.[2]

Richardson was then steeped in the taste of the French Beaux Arts and as Adams put it "had not yet seized his style." Politically the two must have been worlds apart. Adams mentions Richardson, the Southerner, during the early years of the Civil War as being "politically on the fence."[3] This could hardly have agreed with the facts. Richardson had probably hidden his feelings from his friend, the son of the Yankee Minister as his unwillingness to take the oath of allegiance to the Northern States during his brief return to Boston in the year 1862 shows. The

ERNST SCHEYER *is on the faculty of fine arts of Wayne University. He has recently become particularly interested in Henry Adams. This is one of a group of papers on that enigmatic figure by Mr. Scheyer.*

same letter refers to Richardson as "Fez Richardson" but it is not definitely known what this designation—obviously a nickname—means. We might guess that the young architect earned it by wearing a Turkish fez, then fashionable in student circles. That must have gone well with his rotund appearance and his love for food and drink.

Since so little is known of the private life and the looks of the architect, the descriptions of Mr. and Mrs. Adams, La Farge and Saint-Gaudens are valuable. They might also help to explain Richardson's penchant for the heavy and vigorous in architecture as conditioned by his mighty physique. Adams compares him several times to Tati Salmon, Chief of Tahiti, son of a Jewish father and a Polynesian princess, "whom he markedly resembled."[4] Tati fascinated Adams, just because he had "that sort of overflow of life that made Richardson so irresistible."[5] The chief's sister Marau "has the same big, Richardsonian ways that her brother Tati has."[6] John La Farge also observes the similarity between Tati and Richardson and writes about it in his *Reminiscences of the South Seas:* "It was pleasant to be with Tati again and hear him laugh, something like Richardson, whom he resembles in size as well as in many little matters."[7]

This picture is rounded off by Saint-Gaudens in his *Reminiscences:*

> Richardson was an extraordinary man, and it would require a Rabelais to do justice to his unusual power and character. He had an enormous girth and a halt in his speech, which made the words that followed come out like a series of explosions. Richardson wore a brilliant yellow waistcoat and his appetite was in full harmony with his proportions.[8]

Mrs. Adams also appreciated Richardson as a gay dinner companion and conversationalist "most entertaining and full of talk,"[9] "gay and full of life,"[10] "he can say truly 'I am my own music' for he carries off any dinner more or less gaily."[11]

Their European *Wanderjahre* behind them, we find Adams and his artist friends united in that prime example of the American artists' aspiration towards a new and meaningful style, Trinity Church in Boston. Richardson had won the competition for it in 1872 and had suddenly achieved national fame and prominence.

The four men had moved closer to each other. Adams, then assistant professor of history at Harvard (1870–77), lived in Boston at 91 Marlborough Street or in Beverly Farms, Mass. La Farge and Saint-Gaudens, though they kept their studios in New York, were often employed around Boston and spent considerable time there during the seventies and artistic relations were there woven among these four men. Richardson had moved his house and office to Brookline near Boston in 1874. It is of greatest interest that a serious exchange of ideas and experiences in the field of art, architecture especially, started between Adams and Richardson. Adams must have visited the church very often while the work was in progress, yet it seems as though the most decisive exchange of ideas concerning the architecture and especially the decoration of the church was going on between Richardson and the painter La Farge. This is supported by the fact that it was not their first association of this kind. La Farge mentions in a lecture delivered before a society of young architects in 1892 that "Mr. Richardson desired for the Brattle Street Church in Boston an interior with painted decoration as important at least as the sculptured work of the large exterior bands of bas-reliefs. In this painting Mr. George Butler was to assist me but the scheme fell through."[12]

The date given by La Farge for this project was 1872. The "sculptured work" referred to was by the French sculptor Bartholdi. It contained, besides the famous angels blowing trumpets, some portraits, including those of Richardson and La Farge.[13] La Farge was also responsible for the meeting of the French sculptor and H. H. Richardson. It took place in the painter's studio where the sculptor had found a temporary shelter after his arrival in the United States in 1872, the year after the Franco-Prussian War. It was in La Farge's studio that he had created the model of the "Statue of Liberty."

The Brattle Street Church was the first "Romanesque" building of Richardson and a direct forerunner of Trinity Church. The project for the latter from the year 1872 still shows a certain resemblance to the Brattle Street Church.[14] It was La Farge who was chiefly responsible for the great changes in design which to a certain extent effaced this resemblance. The passage in La Farge's *Reminiscences* which proves his decisive share in the final design of Trinity Church and with it in the evolution of Richardson's style is important enough to be quoted here in part:

> When he [Richardson] competed in the most courageous way with Dick Hunt, among others, for Trinity Church, and won, he had, as yet, not taken hold seriously of the Romanesque problem. He designed a building which was intelligent but not what could be done and especially wanting in any historical character. Gradually he felt it. We spent many hours together. He was then in Staten Island, a married man, and glad to give me long day and night hospitality. . . . I was able to propose to Richardson to change entirely the character of the building so far at least as externals, which in this case would not be separated from the great basis of plan, etc. I brought him photographs of the Spanish Romanesque churches Avila, and so forth of which I had a special collection made for Queen Victoria during her visit. Meanwhile Richardson built the Brattle Street Church.[15]

It is, however, known that it was finally not the Avila churches such as San Vicente and St. Peter but the old Cathedral of Salamanca, more specifically the so called del Gallo Tower with its dormers and octagonal tiled steeple, which Richardson's associate White, following La Farge's

photos and advice, adapted in his execution of the design to fit the earlier scheme of Trinity Church.

Certainly, the proportions and the unity of the building profited by the reduction of the excessive verticality of the central tower to its present heavy, compressed sturdiness.

The new detail of this interior and especially the elaborate polychromatic scheme in the Auvergnat Romanesque —the Romanesque of Southern France—[16] might have derived, as Hitchcock suggests, from the reproductions in Revoil's *Architecture Romane du Midi de la France*, which was published just at that time (1873).

It is tempting, however, to see in that, too, not only the influence of the "historically" trained, elaborate taste of Stanford White tending to Victorian picturesqueness, but also that of the always color-conscious painter La Farge, who took care of the interior of Richardson's "color church."

About La Farge's great share in the decoration of the interior—the first large scale attempt in the history of American architecture and actually the beginning of the American mural—we are well informed through La Farge's aforementioned "Lecture to the Young Architects" as well as through the lengthy passage in La Farge's *Reminiscences*.

Both reports stress the extremely short time available for the completion of the interior. Work on it began late in the winter of 1876, while the absolute deadline for the consecration of the church was February 9, 1877. They further mention the lack of money for suitable scaffolding and the difficult circumstances under which the work had to proceed in winter with the enormous windows not filled until very late in the season. All this meant hardships, even risks to life and limb for the people carrying on the work.

La Farge furthermore emphasizes the fact that he had to create the technical conditions for American mural painting from nothing, fighting "hand to hand with commerce" and continues:

> Good materials were difficult to purchase, methods of applying them had to be devised on the spot. . . . At the end we had to work both night and day, and were only able to guess at what might be the result when the scaffolding should come down.

These truly dramatic circumstances are of special interest to us here because they have been used by Henry Adams for his novel *Esther*. The story was published by him in 1884 under the pseudonym of Frances Snow Compton.

Robert E. Spiller, editor of the 1938 re-issue of *Esther*, points in his introduction [18] to some of the parallels between the setting and persons in the novel and the building of Trinity Church and its artists. According to him, the Church of St. John on Fifth Avenue, New York, of the novel is Trinity Church, Boston, and Wharton is La Farge. He further shows that Adams also drew certain features from St. Thomas's Church in New York, "the decoration of which La Farge had just recently completed."

Spiller mentions that "the unconventional terms under which Esther (a young society woman) did her painting and the haste and casual character of the work are clearly suggested in this account." The fact that in the novel the role of the leading artist is assumed by a painter while neither architect nor sculptor is mentioned, makes it probable that Adams relied chiefly on La Farge's accounts. We believe that he used as additional sources his own observations on the spot and what the minister of Trinity Church, his friend Phillips Brooks, might have told him previously. The fictitious Stephen Hazard, minister of St. John's, is a fusion of Brooks and Adams.

We have gleaned, beyond Spiller's observations, a few more parallels between historical truth and novelistic fiction, between Richardson's Trinity and Adams' St. John.

In the first chapter "unfinished frescoes" and an "unfinished transept" are mentioned,[19] alluding to the speed with which the work had to be carried on at Trinity. We read also in Chapter IV:

> The north transept, high up towards the vault of the roof, was still occupied by a wide scaffold which shut in the painters and shut out the curious, and ran the whole length of its three sides, being open towards the body of the church.[20]

This reminds us of the unsatisfactory scaffold and the dangers mentioned by La Farge. Then there is mention of a "John of Patmos" a mural "next to that which Esther was to paint." [21] This St. John of Patmos had been actually painted by La Farge in 1862–63 for the altar of a Catholic church.[22]

"The first effect of the interior of St. John's, which was as impressive as though she were in the Church of St. Mark's" [23] is an allusion to the rich and colorful interior of Trinity with its dull terracotta, considerable gold and dim blue green.

The remark made by Strong (Adams' friend Clarence King) at the beginning of the story: "Wharton's window is too high-toned" [24] and Esther's reply: "You all said, it would be like Aladdin's" has its parallel in the observations of the modern historian of architecture:

> The La Farge windows in the facade are magnificent in colour and scale once the eye is adjusted to the key of their rich tones. They imitate no earlier glass and yet rival the best of the past in their quality of low burning intensity.[25]

Though the architect of Trinity does not appear in the novel, his library seems to be described. The books mentioned—"an elaborate collection of illustrated works on art, Egyptian, Greek, Roman, Mediaeval, Mexican, Japanese, Indian,"—reflect Henry Adams' taste as well. The passage in the novel runs as follows:

> It happened that Hazard's knowledge and his library were often drawn upon by Wharton and his workmen . . . his collection of books . . . was the best in New York and his library touched the church wall.[26]

This reminds one of Richardson's excellent library in Brookline which was housed next to the office and living quarters of the family and used by his associates White and McKim and certainly also by Adams when he visited his friend from Harvard. Adams might have looked specifically at Richardson's "illustrated works" on the Middle Ages while lecturing on that subject at the college.

Adams had not then been to Spain—he went there in 1879—and he had not yet come to fully appreciate early mediaeval French architecture during his travels. The inspiration, then casually transmitted, must have grown into a more serious interest in the Romanesque style ten years later when Adams and Hay, through the initiative of the first, commissioned Richardson to build combined houses in Washington at 1603 H street. The two friends remained in contact with each other, as we know from Mrs. Adams' correspondence with her father,[27] to the moment work was resumed at the site. The house has since been torn down and a hotel erected where it stood.

The commission was given in January 1884, while Mrs. Adams was still alive. She took the greatest interest in the project.[28] The house was finished in 1886 shortly after her tragic death on December 6, 1885.

In June 1886 Adams left it, as though in sudden flight, for his trip to Japan. The house was built under an ill star and the only mention of it in the *Education* is fraught with melancholia:

> In 1884 Adams joined him [John Hay] in employing Richardson to build them adjoining houses on La Fayette Square. As far as Adams had a home, this was it. To the house on La Fayette Square he must return, for he had no other status—no position in the world.[29]

The melancholia certainly did not pervade the Hay part of the building. There exists a poem by John Hay in which the house is called "The House Beautiful," full of art, music, love and children.[30]

Henry Adams' *Letters* from the year 1884—that is before the catastrophe—breath happy expectancy. He merely assumes the role of the reluctant, grouchy miser whom the irresistible spendthrift Richardson persuades to waste money lavishly, against his will.

These letters add many details to our knowledge of the history of the Hay-Adams House.

The first letter, dealing with the house under construction, is dated Washington, 26 October, 1884, and addressed to John Hay:

> I owe you infinite amusement. Ten times a day I drop my work and rush out to see the men lay bricks or stones in your house. Mine is still where it was when you were here; but yours is getting on. The dining room wall is up to the next floor; the parlor and the whole front is up to the sills of the parlor windows. At this rate, your next floor will soon go in. The brick-work is beautiful. I am now devoured by interest in your door-arch which must soon be begun.

Richardson put back into my contract every extravagance I had struck out, and then made me sign it. After this piece of work he went off to seek other victims. He is an ogre. He devours men crude and shows the effects of inevitable indigestion in his size. If Anderson would only give me that five thousand dollars, I would be unhappy. By the way, I was much amused by my brother John who was here last Wednesday, and who has just built a house in Boston. We took him over Anderson's house, and his disgust for his own became alarming. He swore horribly that Anderson's house was the cheapest thing he had ever heard of, and far handsomer than that of Fred Ames which cost a million or two. Judge Gray has bought the opposite corner to Paine's lot; my old family house; 1601 T street . . .[31]

The Anderson House commissioned in 1881 is closest to the Hay-Adams House in style, though a more satisfactory example of Richardson's domestic architecture. Its successful execution was probably the immediate cause for the selection of Richardson as an architect. We conclude that from a letter written by Mrs. Adams to her father from Washington on April 22, 1883: "[We] went over Anderson's new house. It does Richardson great credit; if we had thirty thousand a year it would suit us to a T."[32]

H. Adams' next letters dealing with the house are addressed to his wife—then staying in Boston—and are dated 21 March, 1885, and April 10th of the same year:

> [Richardson] is pleased like a monkey with his houses, especially with the cornices; and gloats over the few bits of ornament he has let go in, as though he had invented all the decoration of St. Ouen and stuck it on our eaves. After kiting about the houses, he came back here and had a talk with Edmundson. [the builder or contractor]
>
> If you can reconcile yourself to it, please have a sea-green onyx fire-place. Should you see Richardson, ask him about this, and if he approves as he will, let us have a Mexican onyx fire place . . .
>
> The house does get on, no doubt, but the work done is no longer so easily noted from day to day. Hay's last chimney was finished yesterday, and the rest of his roof is getting astride of his dining room. So far, so good. To get the roof on at all is a triumph.[33]

The designs for the fireplaces are also mentioned in a letter to John Hay, dated ten days later, April 20, 1885:

> I saw Richardson in Boston and lectured him with my usual severity. So far as I could see, I met with my usual success. He seemed much delighted by an equally severe letter from you, and showed me ravishing designs for your fireplaces which economy itself could not resist. Indeed I have given up resistance either on your behalf or my own. You don't back me up, and I don't support myself loyally. I shall get out of it by telling lies to Nick Anderson. When I saw the houses building in Boston, ours seemed like cottages and I became ashamed of them. As cottages they are thoroughly satisfactory, but as houses they make no kind of show except in an out of the way place like this.[34]

Henry Adams removed himself from the scene of the

building by taking up summer residence in Beverly Farms leaving Theodor Frelinghuysen Dwight—who became his companion and secretary after his wife's death—as observer in his old quarters in Washington. Dwight sent regular reports about the progress of the new house. Adams answers in a somewhat alarmed way from Beverly Farms on the 26th of July, 1885:

Keep your eye on our house-front, and if you see the workmen carving a Christian emblem, remonstrate with them like a father. As yet I am myself uninformed as to their intention. I wanted a peacock. The artist wanted a lion. Perhaps you can suggest a compromise;—say a figure of Mr. Blaine, Conkling or Bayard.[35]

About a month later Henry Adams writes to Dwight again:

Your account of the carvings fills me with terror. I can only hope that John Hay and you will receive the discredit of them, and divide it between you.

We have no news here, and watch the autumn approach with dread at the idea of taking up our architectural furnishing.[36]

As the summer ends he writes to Dwight from Beverly Farms on September 13, 1885:

I am relieved to hear that the stable is going up, and the paint going on. Pray tell me whether any mantle-pieces are finished; whether the kitchen range is in; whether the lift is under way; and whether any sign of completion in bathrooms, etc. is visible.[37]

Then we hear about some friction between architect and client in a letter written from Beverly Farms on September 19, 1885, to John Hay:

The man-mountain Richardson (I suppose you include him among your purchased mountains) told us of your sudden appearance and disappearance after our return. Richardson told me too some tedious tale about our houses being done. I know nothing to the contrary except its impossibility—besides which it is on its face a Richelaisian jest. Big as he is, he turned pale and trembled, when he told me he was going on to see what he had done; and should take the next train to the west—! You can imagine if the thought of seeing my house-front makes his brazen front blanch, what my delicate sensibilities are suffering. What will you give me for my night-mare as it stands? . . .[38]

This refers probably to the trouble with the carvings, since a letter to Dwight written one week later from Beverly Farms, 26 September, 1885, mentions it specifically:

Your account of the cross and carving fills my heart with sadness, and steeps my lips in cocaine. I can neither revolt nor complain though the whole thing seems to me bad art and bad taste.[39]

Adams refers in his last letter written from Beverly Farms to Dwight, October 2, 1885, to the approaching final approval or disapproval of the building by Richardson after some changes have been made in the carvings:

Richardson will be in Washington, I suppose next week, and give the house its final approval or disapproval, as the case may be. John Hay expects to go on with him.[40]

After his return to Washington, Adams writes to Dwight about his impression of the changes in the carved arches on November 4, 1885:

Many thanks for the drawing which shall rank in my new study if I ever get into it. As for the house, Richardson has toned down the worst carvings, and although I cannot pretend that I think them all appropriate, I say as little as possible on the subject. The arches have stood revealed for a week or more. I know not what the public says, and have heard of no newspaper criticisms. Ominous silence prevails within my range of hearing.[41]

Adams writes on the very same day to John Hay from Washington, but he does not discuss the arches with him. His interest is concentrated on the fire-places. With this letter dated November 4, 1885,[42] the correspondence concerning the house ends. Richardson had been seriously ill during the fall of 1885 and was to die half a year later. About one month after this letter was written the suicide of Mrs. Adams occurred. She had not seen the new house completed and had never lived in it. The first letter bearing the new Washington address is dated 22 March, 1886.[43] Adams must have moved into it between the day of his wife's death and this date.

The letter dated November 4 to John Hay breathes an ominous air:

Your house is calm as the Pyramids, but your hall ceiling is up, and very handsome. Evans is still at work on the columns. My hall fireplace is finished. I feel sure it is yours, and that Klaber gave it to me to quiet me, and is making another for you; but I can't prove it. Klaber's man is constructing an *awful onyx tombstone* in my library. (Italics added.)

Evans was regularly employed by Richardson for the carving of architectural details. The Romanesque columns and the base of the columns of the Hay fireplace can be seen in the photograph in Hitchcock's book.[44] Klaber was the man who built the fireplaces after Richardson's design. The term "onyx tomb-stone", taking on a tragic and prophetic meaning in connection with Mrs. Adams death, describes well the heaviness of Richardson's late interior style. The Hay-Adams House belongs to the last domestic buildings of H. H. Richardson.

Yet in spite of a certain heaviness inside and out, the house is described to us by Van Wyck Brooks as containing "sunny rooms."[45] The same author observes also a certain similarity with Sever Hall, Harvard, which however is very general. The next stylistic relatives to the Adams House are the Trinity Rectory in Boston, the Anderson House in Washington and, for the interior, the Payne House in Waltham, Massachusetts.

J. T. Adams gives in an article "At Mr. Adams" the following description of the interior:

This house built for him by his friend H. H. Richardson, was an odd home for such a fastidious man as Mr. Adams. The leather chairs which abounded, were all so low that they seemed to have been made for the host's own use . . . To the eye it was a very Bostonian house, though Mr. Adams did not care to have you think so.[46]

George Santayana, however, who visited in the house as a young man, calls it "luxurious" and remarks: "I got the impression that, if most things are illusions, having money and spending money, were great realities." [47]

We owe the most detailed description of the Hay-Adams House to H. D. Cater who has pieced it patiently together from conversations with relatives and friends of Henry Adams. It follows here in part:

Facing south on Lafayette Square, directly across from the White House, it was a four-storied, red brick structure, fronting directly on the edge of the sidewalk. It had little about it that was pretentious and much that was practical. There were two broad arches on the street floor which formed bays, one of which was covered by an iron grill, and the other formed the main entrance to the house. Since the house was built in the European manner—an old French house in the Troyes region was Richardson's inspiration—the main living-rooms were on the floor above, and a flood of light came into them from six large south windows across the front; three were for the library and three were for Adams' study. The two top stories were used for sleeping; the lower one of the two had a recessed balcony overlooking the Square. The front stairs, designed to make climbing almost effortless led from the street level to a hall, which in turn opened into the large library. The latter served also as a drawing-room. In this room there was a fireplace of sea-green Mexican onyx shot with red. Off the library and to the rear, was the dining-room, which had an unusual fireplace in light stone carved with wild roses. These two rooms and Adams' study opened into each other by folding doors. In all these rooms there was a sense of color and light, but a definitely masculine atmosphere. . . .[48]

The year 1886, in which the Adams House was completed, was that of Richardson's death (on April 27th).

It was not before Adams became passionately interested in the Romanesque style himself that the finest tribute to the architect was written by him. That occurs in a passage of a letter written while he was engaged in the writing of *Mont-Saint-Michel and Chartres:* "I am now all eleventh and twelfth century . . . I caught the disease from dear old Richardson who was the only really big man I ever knew." [49]

And this time the allusion to Richardson's "bigness" seems to refer not merely to the architect's physical but also to his mental stature.

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2. *Education,* pp. 213, 14.
3. *Letters of Henry Adams (1858–1918)* edited by Worthington Chauncey Ford, (2 vols.; Boston and New York, 1938–39). Hereafter quoted as *Letters.* Vol. I, p. 110, to Henry Lee Higginson, dated London, September 10, 1863.
4. *Letters,* I, p. 471, to Elizabeth Cameron, dated Papeete, February 23, 1891.
5. *Letters,* I, p. 490, to Elizabeth Cameron, dated Hitiaa, Tahiti, June 4, 1891.
6. *Letters,* I, p. 481, to Elizabeth Cameron, dated Papara, April 8, 1891.
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10. *The Letters of Mrs. Henry Adams,* p. 377, dated Washington, April 30, 1882.
11. *The Letters of Mrs. Henry Adams,* p. 379, dated Washington, May 7, 1882.
12. Quoted in Cecilia Waern, *John La Farge: Artist and Writer* (London and New York, 1896), pp. 33–36.
13. Royal Cortissoz, *John La Farge, A Memoir and a Study,* Boston and New York, 1911, pp. 155, 156.
14. See plate 38 in Henry-Russell Hitchcock, *The Architecture of H. H. Richardson and His Times* (New York, 1936).
15. Royal Cortissoz, *John La Farge,* pp. 153, 154.
16. Hitchcock, *op. cit.,* p. 139.
17. Cortissoz, *op. cit.,* p. 156–8, and C. Waern, *op. cit.,* pp. 33–36.
18. *Esther,* A novel by Henry Adams (Frances Snow Compton), with an introduction by Robert E. Spiller, (New York, 1938), pp. xvii, xviii.
19. *Esther, op. cit.,* pp. 1, 4.
20. *Esther, op. cit.,* p. 73.
21. *Esther, op. cit.,* p. 75.
22. Cecilia Waern, *op. cit.,* p. 29. A study for it is reproduced on p. 31.
23. *Esther, op. cit.,* p. 74.
24. *Esther, op. cit.,* p. 3.
25. Hitchcock, *op. cit.,* p. 142.
26. *Esther, op. cit.,* p. 93.
27. See footnotes 9–11 (letters from the years 1881–1882).
28. Mabel La Farge in *Letters to a Niece* (Boston and New York, 1920), pp. 8, 9.
29. *Education,* p. 318.
30. William Roscoe Thayer, *The Life and Letters of John Hay* (2 Vols.; Boston and New York, 1915), Vol. I, p. 67.
31. *Letters,* I, p. 361.
32. *Letters,* Mrs. Adams, p. 442.
33. Cater, *Unpublished Adams Letters,* pp. 143 and 146, 147.
34. *Letters,* I, p. 363.
35. Cater, *op. cit.,* p. 152.
36. Cater, *op. cit.,* p. 152, dated Beverly Farms, August 28, 1885.
37. Cater, *op. cit.,* p. 153.
38. *Letters,* I, pp. 363, 364.
39. Cater, *op. cit.,* p. 154.
40. Cater, *op. cit.,* p. 155.
41. Cater, *op. cit.,* p. 156.
42. *Letters,* I, p. 364.
43. Cater, *op. cit.,* p. 159.
44. Hitchcock, *op. cit.,* plate 123.
45. *New England Indian Summer 1865–1915* (New York, 1940), p. 354.
46. J. T. Adams, "At Mr. Adams," *New Republic,* XV, pp. 106–8, May 25, 1918.
47. *Persons and Places* (New York, 1944), p. 234.
48. Cater, *op. cit.,* pp. lxiii, lxiv. See also plates 121, 122 in Hitchcock, *op. cit.*
49. *Letters,* II, p. 240, to Elizabeth Cameron, dated Paris, September 18, 1899.

NEW YORK AND THE PROBLEM OF THE FIRST SKYSCRAPER

WINSTON WEISMAN

RECENT RESEARCH into the origin and evolution of the tall building in New York suggests the need to re-examine the whole problem of the "first skyscraper" in the light of the new material uncovered. At the moment there is little agreement on this controversial subject. Judging from the literature, the authorities appear to be divided into a number of groups. The first and largest holds that William LeBaron Jenney's Home Insurance Building erected in 1884–1885 in Chicago was the earliest skyscraper. A second feels that this distinction belongs to the Montauk Building raised in Chicago by Burnham and Root in 1881–1882. A third objects to both buildings just mentioned claiming that neither was tall enough to be considered a true skyscraper, but offers no candidate of its own. A fourth traces the earliest example back to the tenements or *insulae* of ancient Rome. A fifth holds that the Tower Building erected by Bradford Gilbert in New York in 1888 and 1889 was the first structure of its type. At this time, the author would like to introduce for consideration two rather obscure New York monuments as possibilities for the title. They are the Western Union Telegraph Building by George B. Post (Fig. 1) and the New York *Tribune* Building by Richard M. Hunt (Fig. 2) both constructed between 1873 and 1875.

It would seem that the answer to this question of which skyscraper was first lies in the realm of interpretation. The selections listed above all stem from two essentially different conceptions of what a skyscraper is. One is technological. It insists that a skyscraper must have a skeleton frame system of construction. It argues that since the Home Insurance Building was for all practical purposes the first structure to exhibit this characteristic it is, therefore, the earliest monument. Those who supported the Tower Building did so in belief that it was the first skeleton frame structure. Actually, of course, it was only the first monument of that type in New York.

WINSTON WEISMAN *is at work on a history of the New York skyscraper on a grant from the American Council of Learned Societies.* *He wishes to thank that body for making this paper possible and to acknowledge the help of Miss Grace M. Mayer, Curator of Prints, Museum of the City of New York, and Mr. Arthur B. Carlson, Curator of Maps and Prints, New-York Historical Society. This paper was read at the 1953 annual meeting of the Society of Architectural Historians.*

The other concept seems to be primarily visual. It makes the element of height the distinctive feature. Those who hold this point of view say that since the Montauk and the Home Insurance were about the same height, that is ten stories and approximately 130 feet when originally built, and since the Montauk antedates the Home Insurance by three years, it deserves the title. Group four points to the *insulae* on the same ground claiming that since there is reason to believe that these structures reached the height of ten stories or 100 feet during the Imperial period they deserve the laurel.

The question is, therefore, which one of these two views is correct or more in accord with the historical development of the skyscraper. When examined briefly, there appear to be three serious objections to the technological interpretation. First and foremost, it is too limited in scope to be satisfactory. It does not take into account the entire cultural environment that produced the skyscraper. In emphasizing technique the tendency has been to obscure the economic, sociological and esthetic considerations, all of which were playing prominent roles in the evolution of the skyscraper. Such an interpretation suggests that the skyscraper was a gadget or a mechanical device which a Buffington or a Jenney could invent, when in reality it was a highly expressive symbol manifesting architecturally in an original and creative way a historical totality rather than a relatively narrow section of nineteenth century American life.

Second, such a limited view creates more problems than it solves. It confronts us, for example, with the dilemma of classifying relatively low skeleton structures as skyscrapers and eliminating tall buildings because they do not have that kind of construction. On the basis of such an interpretation we would have to rule out Burnham and Root's sixteen story, 215 foot Monadnock Building of 1889–1891 because of its masonry construction and George B. Post's twenty-six story, 249 foot New York *World* Building of 1889–1890 on account of its "cage" construction, even though for several years the latter structure enjoyed the distinction of being the tallest office building in the world.

This leads to the third objection, namely, that such a

FIG. 1. Western Union Telegraph Building. (Museum of the City of New York)

premise contradicts the very meaning of the word "skyscraper" and contravenes its historical development, as will be shown presently.

Let us now consider the other proposition which sees the skyscraper primarily as a high office building and find out whether it fits the facts better. First let us look into the relationship between this concept and the meaning of the word "skyscraper." The term appears to have a long history. Mario Pei in *The Story of Language* claims it can be traced back to 1252 in Italy. In England and the United States it seems to have been in common useage all through the nineteenth as well as in the latter part of the eighteenth century. W. A. Craigie and Henry Bradley in *The Oxford Dictionary* cite its use as early as 1794 in connection with a triangular sky-sail which was set above the "royals" in calm latitudes. These sails were called "skyscrapers" or "moonrakers" because of the great height at which they were set.

Colloquially, the word was used to refer to very tall horses, unusually tall men and large bicycles, particularly the type with high front wheels. A skyscraper was also an exaggeratedly "tall" tale. And according to *Oxford*, "a high building of many stories, especially one of those characteristic of American cities."

Maitland's *American Slang Dictionary* of 1891 defines the skyscraper as "a very tall building such as now are being built in Chicago." And in the latest *Dictionary of Architecture*, published in 1952, Henry H. Saylor described the skyscraper as "A very tall building, usually of skeleton construction."

Thus it would appear that the word always referred to something extremely high. It would seem to follow then, that when the term "skyscraper" was first applied to architecture, probably around 1890, it was not because the buildings being raised then in New York and elsewhere had skeleton frames, but because they appeared unusually tall. This suggests that the late nineteenth century conception of the skyscraper was not technological, but one that

FIG. 2. New York *Tribune* Building. (J. Clarence Davis Coll., Museum of the City of New York)

involved a visual impression of architecture in which height was the most distinctive feature.

Following this investigation further, let us see what support for this point of view can be found from a study of commercial architecture in New York between the years 1865–1875. As is known, in the score of years prior to that decade the nation was undergoing a tremendous economic expansion. Corporate enterprise as we know it today got its start in that period. Businesses such as banking and insurance, which had started earlier, burgeoned forth. Many others, especially in the field of communications, took root. Cities like Chicago, Cincinnati, Buffalo, Philadelphia, Boston and St. Louis figured prominently in this growth. But the most important one of all was New York. It soon outstripped its rivals and became the economic capital of the land.

The advent of the Civil War tended to slow down building activities in New York. But as soon as it was over the pent-up demand for space made itself felt most forcefully. The number of buildings erected in 1865 almost doubled that of 1864. Fifty-four of these, we are told by John Kennion in *The Architects and Builders Guide* of 1868, were high grade, costly structures intended solely for business purposes. From that year until 1875, when the depression touched off by the panic of '73 struck with full force, fine buildings blossomed all along Broadway and in the side streets. Banks, insurance companies, wholesale and retail establishments burst out of their cramped quarters and built elegant, commodious offices and salesrooms.

In 1865 New York was a city of four and five story structures, Stokes tells us in his *Iconography of Manhattan Island*. In that year the Mutual Life Insurance Company, which had won for itself a position of great prominence in the business world, moved into its new home at 140 Broadway. Its designer was John Kellum, the same architect, it will be recalled, who had built in 1862 the cast iron show place on Broadway and 10th Street for the merchant prince, A. T. Stewart. Mutual was not unlike many others that had been built earlier. It was a four story structure planned to accommodate the owner and two other tenants who were expected to help carry the costs of the building.

It was a commercial building both in the sense that it housed business firms and sold its space as a commodity to produce revenue. When compared, however, with a typical office building of an earlier period it displayed one noteworthy difference. Whereas, the Arcade Building erected in 1849 (Fig. 3) was unadorned and planned much like residential architecture of its time, Mutual with its white marble front, its picturesque, classic details had a rich, ornate quality on the exterior and an interior specifically designed to meet the needs of the firms located there.

Between 1866 and 1868 Kellum also did the New York *Herald* Building (Fig. 4) at Broadway and Ann Street, just opposite St. Paul's Chapel. Like Mutual, this structure was conceived and designed commercially to house not only the owner but a number of other tenants. It had, however, a fifth story in the form of a mansard roof.

In 1868 Griffith Thomas started the New York Life Insurance Company Building at 346 Broadway (Fig. 5) which he finished in 1870. It followed the pattern of the others, namely, a four or five story ornate business building with or without mansard. What is important to note for our topic is that in none of these structures was the passenger elevator an original part of the plan.

At the same time that the New York Life was going up another home office was being completed which was to have a profound effect upon commercial architecture thereafter. It was the Equitable Life Insurance Company Building at 120 Broadway designed by Arthur Gilman and Edward Kendall with the young engineer George B. Post consultant in matters of construction. This structure (Fig. 6) evolved from those that had gone before but moved ahead in one extremely important respect. It introduced the passenger elevator as an integral part of office building planning. In so doing it ushered in a new era of commercial architecture in New York.

Vice-president of Equitable at this time was forceful, energetic and business-minded Henry Baldwin Hyde. This alert and far-sighted man had heard about the passenger elevators that were then in use in the Fifth Avenue Hotel, the Haughwout Store and a few other structures and he was convinced that by employing them office buildings could be made more profitable and commercially sound. He knew that the average height of office structures had been kept down to four or five stories, not because of construction problems, but because prospective tenants refused to climb higher or could not get their clients to do so. As a result, the upper floors were always hardest to rent and brought the lowest returns.

Hyde dreamed of changing all that. He hoped not only to make the fifth floor as desirable as the second, but also to increase the number of stories. Such a scheme, if it could be made to work, would insure full occupancy at maximum prices and considerably increase the total yield of the building. His board of directors and real-estate agents scoffed at the idea, if we can believe the account of all this appearing in *Henry Baldwin Hyde, A Biographical Sketch* published by Equitable in 1901. Fortunately, however, they were not able to change Hyde's mind in this matter and the building he and his architects were contemplating went into construction.

Hyde's vision, reason and courage proved sound. When Equitable was opened on May 1, 1870, it was an immediate success. Competition for its space was so keen that George Post, who had agreed to take over a suite of offices on one of the upper floors for twice the appraised rent as a token of his confidence in the scheme, was able to sell his lease in six months' time at a profit of $6000.

FIG. 3. Arcade Building. (J. Clarence Davis Coll., Museum of the City of New York)

FIG. 4. New York *Herald* Building, from a contemporary steel engraving.

FIG. 5. New York Life Insurance Company Building, from a contemporary steel engraving.

FIG. 6. Equitable Life Insurance Company Building, from a contemporary steel engraving.

FIG. 7. Mutual Life Insurance Company Building as renovated, 1870–1871, from a contemporary photograph.

FIG. 8. Domestic Sewing Machine Company Building, from a contemporary steel engraving.

FIG. 9. Metropolitan Life Insurance Company Building, from a contemporary photograph.

FIG. 10. New York *Evening Post* Building, from a contemporary steel engraving.

Equitable was five stories and 130 feet high, according to the New York City Building Department records. Actually, it had six rentable floors, according to a very detailed description of the building in *The New York Pathfinder* of January 1870. The plan, which apparently is no longer extant, is not quite clear. The *Pathfinder* says that the first floor was designed as banking quarters and it would appear from the elevation that this involved the space up to the top of the first colossal story. The second and third floors, the *Pathfinder* tells us, housed the Equitable. This seems to refer to the second colossal story above the entrance way. And the fourth, fifth and sixth floors, again according to the *Pathfinder*, were divided into fifty spacious offices for lawyers and other professional people. These floors in all likelihood made up the third colossal story as well as the lower part of the mansard. The seventh story, which must have taken up the upper level of the mansard, was used as a storage space and as a domicile for the janitor. Counting the half story on which the colossal orders rested, Equitable was what might be called a seven and a half story structure.

The influence of this building was felt overnight. Some structures that had had difficulty in finding tenants installed elevators. Others were enlarged when the elevator proved what it could do. The New York Life Insurance Company, which had moved into its offices at the same time as Equitable, was unable to rent its upper offices so within three months' time put in an elevator to do so. Later on, in 1879, Henry Fernbach added a mansard. Earlier, only a few months after Equitable's completion, Mutual also put up a mansard which was finished in 1871 (Fig. 7).

Other companies and architects were quick to understand the significance of Equitable's experiment with the passenger elevator. In September 1872 Griffith Thomas submitted plans to the Building Department for an eight story structure for Broadway and Union Square which was to become the home of the Domestic Sewing Machine Company (Fig. 8). When that building was finished in 1873 it was 110 feet high, not up to the Equitable or the renovated Mutual, but still a towering monument for those days, as can be realized by comparing the Domestic with the buildings flanking it in the illustration.

At the same time, Arthur Gilman put up the Drexel Building for the Drexel, Morgan Company at a cost of $1,000,000. It was seven stories counting the mansard. Near by, Gilman also built the Bennett Block which had two Tufts elevators serving its six floors. In 1873 Richard M. Hunt began raising the Delaware and Hudson Canal Company Building which was to reach a height of nine stories and 155 feet when it was finished in 1876.

In 1874–1875 Napoleon LeBrun remodelled the old Constant Building at Park Place and Church Street for the Metropolitan Life Insurance Company (Fig. 9). He raised the structure two stories in the form of a mansard and introduced elevators and other modern conveniences to accommodate the Metropolitan's quarters and the sixty-five other offices there.

In 1875 the finishing touches were being put on the New York *Evening Post* Building at Broadway and Fulton Street by C. F. Mengelson (Fig. 10). It was a brick structure with more stories than the others, ten in number, but its 115 feet made it lower than the Equitable and about the same height as the Domestic Sewing Machine Building.

At this time the two structures introduced at the beginning of this paper were being completed. George Post's Western Union Telegraph Building for Broadway and Dey Street was officially approved on January 2, 1873, while the New York *Tribune* Building at Printing House Square by Hunt was recorded five months later, on June 5, 1873. These structures were only a few stories taller than some of the others just mentioned. The Western Union was ten and a half, the *Tribune* nine. In over-all foot height, however, they were considerably higher than any other office building ever erected before. The *Tribune* was 260 feet from the sidewalk to the top of its tower, making it only twenty-six feet shorter than Trinity Church which for many years was the tallest building in the city. The Western Union came to 230 feet.

In conception these buildings were direct descendants of the Equitable in that they were lofty elevator office buildings representing prosperous and influential enterprises. The only difference between Equitable and its followers was in their height. The latter were approximately twice the height of their forerunner. This difference, however, was all-important. It was the feature that impressed most people at the time. When *Leslies' Illustrated Newspaper* ran the story of the *Tribune* Building on May 1, 1875, it hurriedly passed over the interior framework of iron columns and beams used there while taking special pains to compare the *Tribune's* height with the heights of eight of the tallest structures in town. It even went as far afield as the national capitol at Washington, listed at 287½ feet, and Boston's Bunker Hill Monument, at 221 feet, for comparisons.

Two years before *The Daily Graphic* had made much the same point about the Western Union Building. In a preview story carried on June 3, 1873, the *Graphic* commented on the present-day practice of business men who are "building up to the clouds and covering the ground with blocks that are a city in themselves." It went on to say that in height the Western Union would be the "loftiest business structure on Broadway . . . twice the height of the five story brown stone structure just north of it."

What light does this brief survey throw on our subject? First, it reveals that between 1865 and 1875 buildings in New York shot skyward in rocket-like fashion. Between 1800 and 1865 the business structure had risen gradually from three to four, five and occasionally six stories barely

doubling its height in all that time. In 1865 the average commercial building was five stories tall and about sixty feet high. By 1872, that is within a period of only seven years, architects were already planning buildings four times that height.

Second, it indicates that this ascent occurred primarily in the office building category and not in all classes of commercial architecture.

And third, it clearly shows that in all this, construction played an insignificant role. The system in all the structures discussed was much the same. Self-supporting, load-bearing walls were used in combination with iron columns and beams for interior support. The elevator and fireproofing methods were of greater importance in increasing height. The paramount factor, however, was economics. It cannot be overemphasized that space in these buildings was conceived as a commodity to be sold at a profit. And it was the pursuit of profits that largely motivated businessmen to "build up to the clouds" as the *Graphic* put it. Technological experimentation was financed by business because it promised greater monetary returns or made for a sounder investment. When Henry Hyde and Equitable's board of directors accepted George Post's recommendation that the iron elements be reduced in weight and dimension in contrast to customary practices it was because costs could be cut from $200,000 to $147,000 that way. When they consented to spend $29,657 for two elevators it was because it was hoped more money could be made by such an investment. There were risks involved in both ventures but the promise of profits made them worth taking. Technology, then, was merely a minor cog in the complex machinery which was to produce the tall buildings raised between 1865 and 1875. The mainspring was economics.

Other factors, too, played their part in the realization of architectural height. Height had prestige value both for an individual and a business firm. It symbolized position, power and prosperity. It had public relations value. It created confidence in a company and its product. The organization that owned a lofty building was by virtue of it

FIG. 11. Perspective view of lower Manhattan with projected Brooklyn Bridge, 1870, from a contemporary steel engraving.

FIG. 12. Beal's panoramic view of lower Manhattan, 1876. (New-York Historical Society)

a sound one. Firms that wanted to win public acceptance and approval could do so in part by erecting tall and elegant offices. By 1875 most of the big banking and insurance companies had their own central headquarters in what were then the costliest and highest structures in the city.

Height also had an esthetic appeal. It was to architecture what a "romantic fragment" was to painting of the time. It stirred the emotions. It stimulated the imagination. Looking up at these great buildings was an awe-inspiring experience. Looking down from on high was spine-tingling. Height thus provoked and provided an opportunity for new sensations. In this respect, namely, in its capacity to excite the senses, height was an instrument or vehicle through which the Victorian esthetics of the time expressed itself. The esthetic quality of height has been exploited by tower builders down to our time. View made possible by height has become a saleable commodity to tenants and tourists alike.

What our brief study suggests, in other words, is that height manifesting itself economically, technologically, sociologically and esthetically was a distinctive feature of this commercial architecture. This seems to have been understood as early as 1874. In September of that year, *The American Builder* reprinted a piece from a "city journal" commenting on the height of most of the prominent buildings then being erected in the city. It began by saying that each architectural age had a set of characteristics which distinguished it from others. And then went on to say: "Just now the motto of ambitious builders is that of our state 'Excelsior' and one might believe that the chief end of the present crop of buildings is the observation of comets." The article which has been paraphrased and quoted from briefly was entitled, "Height, the Architectural Feature of the Age."

If height actually played the role we have cast for it in this period and if it was that element which prompted someone around 1890 to call certain tall buildings "skyscrapers," then we might with good reason accept the second of the two points of view outlined earlier as being more in accord with the historical development of the skyscraper and cast out the technological interpretation.

If we do so, we automatically set aside all the claims made by groups one, two and five. Since height and not the skeleton is the yardstick, the Home Insurance and the Tower Buildings can be eliminated on the grounds that the *Tribune* and Western Union were higher and earlier in date. The Montauk's claim is invalidated for the same reason.

The claim made by group four in favor of the Roman *insulae* of the Augustan period should be set aside also on the ground that they were not the *first*, but the *last* examples of a long series of such buildings going back more than 400 years. Historically and architecturally speaking, they had no connection with the skyscrapers of the late nineteenth century or with those of the present time.

For much the same reason, neither Trinity Church which ruled over the New York skyline for many years after its completion in 1846, nor Latting's 350 foot observatory which was a spectacular feature of the New York World's Fair of 1853, nor the ten story Stuart's Sugar Refinery of 1853 should be considered contenders for the title of the "first skyscraper." Despite their height, none of these structures or the generic type of architecture they represent, namely, the church, the tower or the factory, paved the way for the mighty monuments of our time. On the other hand, that is precisely what the office building and in particular, the *Tribune* and Western Union did.

There remains then to answer group three, that is, to deal with the question of whether the New York monuments were high enough to be considered true skyscrapers. In all probability this question will never be answered to the satisfaction of all. Since height is relative it is not possible to arrive at a conclusive solution to this problem. All one can do is form an opinion and attempt to justify it. In the opinion of the author, these monuments were high enough to be classified as skyscrapers, for the following reasons.

First, all those who hold the Montauk to be a skyscraper on the basis of its height must agree that the *Tribune* and Western Union are skyscrapers too.

Second, there is evidence to indicate that these structures were considered skyscrapers by some experts only a short time after the term was borrowed and used architecturally. In 1898 Michael A. Mikkelsen writing in *A History of Real Estate, Building and Architecture in New York City During the Last Quarter of a Century* said: "Prior to 1879 there were only two office buildings—the *Tribune* and the Western Union—which could be ranked today among the 'skyscrapers'." In 1912 David H. Ray, onetime Chief Engineer of the New York City Building Department, wrote in *Engineering News:* "The average roofline in lower New York is now 200 feet above the curb. No building which does not rise above this line can be seen from the harbor nor claim the title of skyscraper in these days of 500 foot buildings." Since both the *Tribune* and the Western Union were well over 200 feet, the inference is that they were skyscrapers in the opinion of the Building Department official.

The third reason for thinking that both buildings were true skyscrapers is that visually they represent a radical departure from earlier architectural tradition. As noted before, in 1865 New York was essentially a horizontal city composed of long rows of four and five story walk-up structures occasionally interrupted by a six story one. In 1870, the Equitable by its use of the passenger elevator had pierced this level allowing others to come through shortly thereafter. By 1875 the *Tribune* and Western Union exploited this breakthrough of the pre-elevator ceiling in

such a dramatic fashion that they appreciably affected the architectural character of New York and its skyline.

Here is what that very discerning critic, Montgomery Schuyler, said on this subject in *The Architectural Record* of March 1899 in an article entitled "The Skyscraper Up to Date": "The first building in which the possibilities of the elevator were recognized were the *Tribune* and Western Union Buildings in New York which were concurrently under construction 25 years ago. They were much more conspicuous and comment-provoking than even the St Paul [Building] and the Park Row [Building] are now because they were alone and because lower New York then had a skyline from which they alone, excepting the church spires, were raised and detached. The skyline was 'the purple line of humble roofs' built to the limit as that limit was set by the power of ascension of the unassisted human leg. Through this line of five stories the new monsters protruded in a portentous fashion and though they were but of half as many stories again as the older edifices that formed the skyline, they were more distinctive features than their successors which were four or even five times as high as the old fashioned edifices."

What Schuyler had to say is well illustrated in a comparison of two views of lower New York. The first (Fig. 11), published in *Harpers Weekly* in November 1870 with a projected view of Brooklyn Bridge, shows the skyline of Manhattan as a horizontal city still dominated by church steeples even as it had been in colonial days. Beal's photographic panorama (Fig. 12) taken in 1876 from the Brooklyn tower of Roebling's bridge shows the changes wrought in six short years since 1870. Reading from right to left we see the New York tower of the bridge, the *Tribune*, Mullett's New Post Office, the Beekman Street Shot Tower, the *Herald* and National Park Bank Buildings standing in front of St. Paul's Chapel. Just to the left is the *Evening Post* Building partially obscuring the Western Union. Beyond is the Delaware and Hudson Canal Company Building and finally the Mutual and Equitable Buildings with Trinity Church on the far left.

What the comparison of views reveals is that between 1870 and 1876 New York was being transformed from a horizontal into a vertical city by a series of tall office buildings. What was begun then and developed later on a fabulous scale was to make the metropolis famous throughout the world for its gigantic office buildings, in other words, its skyscrapers.

Of the group that introduced this transformation, the *Tribune* and Western Union were the most prominent. For that reason and the other mentioned, they should be judged true skyscrapers. If they are so considered, they should be judged the first in New York and until research in Philadelphia, Boston and other centers turns up an earlier structure to fit the category, they can be thought of as the first skyscrapers in the world.

AMERICAN NOTES

CHARLES E. PETERSON, *Editor*
Old Custom House, 420 Chestnut Street, Philadelphia 6.

EIGHT-SIDED SCHOOLHOUSES, 1800–1840

"The SCHOOL-HOUSE is the first corner-stone of our nation's greatness," wrote Orson Squire Fowler in his *Home for All*, copyrighted in 1853, ". . . the best *form* for a school-room becomes a matter of no small consequence . . . the nearer we can approach the *circular* form the better . . . the octagon form serves better than the square, and is preferable every way—more than enough so to build the extra angles." Fowler's little volume includes an engraved floor plan for a one-room rural schoolhouse (p. 152 in our 1857 New York edition).

Known to most of us is the rash of octagon residences, inspired by salesman Fowler, which spread across the United States in the 1850's. The fad even went as far as Honolulu where an eight-sided house, popularly called "Beckwith's Folly," was built at Punahou School (*Pacific Commercial Advertiser*, Feb. 18, 1857).

Bart Anderson, Curator of the Chester County Historical Society, has pointed out to us the earlier existence of a large Pennsylvania family of octagon schoolhouses in Chester, Delaware, Montgomery, Northampton and Bucks Counties, all built about the same time, and provided a photograph and documentation for an eight-sider built at the Birmingham Meeting House.

Schoolhouse at Birmingham Meeting, 1819.

The records show that on May 15, 1819 the subscribers met to discuss their problem. It was declared that to repair the old schoolhouse would cost $259.36 and to build a new one, using the materials of the old, would cost only $534.66. It was thereupon voted to build anew in the form of "a regular octagon."

The cost account shows that the masons' work cost

$62.24, carpenters' $175.00, blacksmiths' $9.50, plasterers' $32.00 (plus $8.60 for their board) and for sundry labor, including pulling down the old schoolhouse, excavation, "drawing up" stone, sand and water, tending plasterers, etc. $64.82. The whole, including the hauling of yellow and white pine boards and cedar shingles from Wilmington and Chester and a new stove from Philadelphia, finally came to $712.57.

Essays on "eight-square" buildings (as they were sometimes called) built between 1800 and 1840 by Alden N. Collins (pp. 251–260) and Warren S. Ely (pp. 290–307) appear in the *Bucks County Historical Society Collections*, Vol. V, 1926. Quite a few photographs and floor plans are reproduced. The eight-sided idea seems to have come to these shores in the form of Dutch churches. Professor Wertenbaker showed (*The Founding of American Civilization, the Middle Colonies*, New York, 1938, pp. 77–79) that the first Protestant church structure in Holland (1595) was octagonal and that the form was not uncommon in and around early New York.

Mrs. Sharpless Ewing of Mt. Friendship, Havre de Grace, Maryland afterwards called to our attention old Prospect School just south of Conowingo Dam, and we stopped the other day to see it. Although known locally as the "Eight-Cornered Schoolhouse" it actually is a regular *hexagon*, sixteen feet to a side. The structure is of stone masonry, and from the woodwork we'd say it was built about 1850. Formerly of one room only, it has now been divided into two and is used as a residence. Ely (pp. 291, 292) describes a hexagonal meeting house built by the Society of Friends at Burlington, New Jersey in 1682.

While we are on the subject of architectural octagons we would like to reproduce another—the remarkable design for an Italianate race horse stable on the Whitehall plantation of Governor Horatio Sharpe of Maryland. It is believed to have been designed by an Annapolis architect named Anderson about 1763. This remarkable plantation, a headliner in the evolution of colonial architecture, is discussed in "Governor Horatio Sharpe's Whitehall", *Maryland Historical Magazine*, Vol. XLVI, No. 1 (March 1951), pp. 8–26, by the owner, Charles Scarlett, Jr. and is reproduced here by his courtesy.

Shooting even more angles, we might as well remind you of the sixteen-sided frame stable built by General Washington at Mount Vernon which disappeared some years back.

RUM, ANKERS AND A PREFAB, 1793

Our call for data on early prefabricated buildings was answered by Louise Hall of Duke University who sends us a letter addressed to John Montgomery & Co., Boston, from John Ashley on the coast of Africa. It is the earliest mention we know of a complete building made in this country for export.

BADAGRY, 3d June 1793

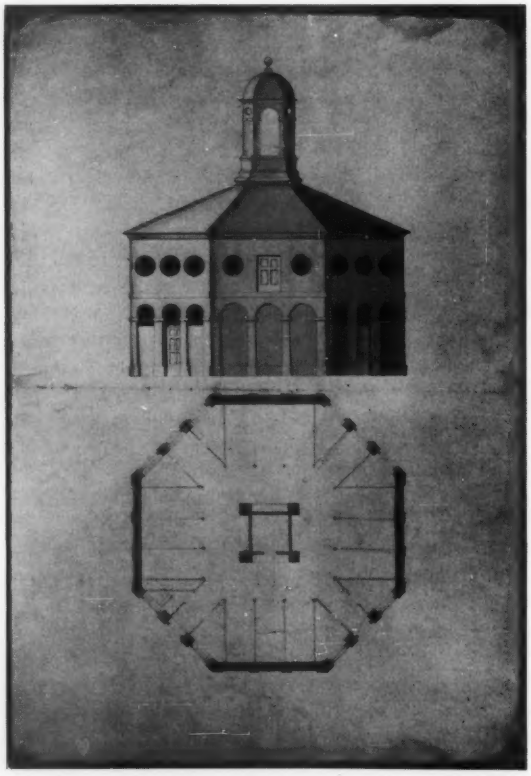
GENT'N,—Agreeable to directions receiv'd from John Dawson, Esq. of Liverpool as per Letter enclos'd, I have consign'd to your address the Brigg *Abbey*, Cap'n Winter, for a Cargoe good strong Rum; which I must beg of you to have put on board with all possible dispatch: as I shall be much in want, having been lately much disappointed in the arrival of our Liquor Ships from Holland, owing to the Warr between France and England.

I must beg your particular attention to this Cargoe, that the Liquor is good and strong: and that the Casks be all strong and well Iron bound. I also wish as many Ankers put on board as you possible [sic, in print] can procure. I have given Cap'n Winter the plan and directions for a Wood House, similar to what you send to the W't Indies, which I request you will get made, and every thing properly fitted. Your particular attention to this will be considered a great favour. Whatever spare room the Brigg may have fill up with Lumber and Sparrs. Two Carpenters and an Armourer please also to procure, and if possible to be Engaged for Twelve months . . . .

I am Sir Your obd't Ser't

JOHN ASHLEY.

(*Mass. Hist. Soc. Proceedings*, XLIV, pp. 668, 669.)



Design for Governor Sharpe's stables, Whitehall, Annapolis c. 1763.

Robert Mills' *Contemplated Addition to St. Michael's Church, Charleston* and *Doctrine of Sounds*

INTRODUCTION *by GEORGE W. WILLIAMS*

By 1750 the single Anglican congregation in Charles-Town in the province of South Carolina had so far outgrown its church, St. Philip's, that it was necessary to erect a new parish and build a new church, St. Michael's. Just fifty years later a comparable increase was crowding the two churches. The eventual solution to the problem was the establishment in 1810 of a Third Episcopal Congregation and the subsequent building of St. Paul's, still the largest Episcopal church in the city.

Another solution was presented in 1804, however, in the guise of a recommendation to extend St. Michael's Church in order to offer more pews and accommodate the enlarged population. In the spring of that year, the Church Wardens directed Robert Mills to draw up plans for the extension of the church.

Mills, a Charlestonian, knew and admired St. Michael's Church extremely, "an inexhaustible source of delight and inspiration," [1] and felt "an evident appearance of design in the arrangement of the whole, that arrests the attention, and produces a feeling of sublimity and reverence on entering it." [2] But the plans themselves reveal the sympathy and the sincere respect and affection which he held for the church; it is doubtful if the Wardens could have chosen a more devoted and informed architect. At a meeting March 11, 1804,

The Wardens laid before the Vestry a Plan which they had procured from Mr. Mills for extending the Eastern End of the Church to the extremity of the Lot—the Drawings consisted of a View of the Church with the proposed Elongation, Drafts of the Altar, Pulpit and Reading Desk, accompanied with a Ground Platt, by which it appeared that an Accession of Forty two Pews below and twelve in the Gallery would be added to the Church.—

The same being taken into consideration by the Vestry and satisfactory Explanations received from Mr. Mills, who attended for that purpose,

RESOLVED unanimously that the foregoing Plan and Drawings be laid before the Church for their approbation

RESOLVED Unanimously that the thanks of the Vestry and Wardens be presented to Mr. Robert Mills for the Handsome drawings done by him for an intended Elongation of St. Michaels Church and that a Copy of this Resolution be transmitted him by the Wardens together with SIXTY DOLLARS as a further Mark of their approbation.[3]

On April 29 at divine service the congregation was notified of a meeting to be held May 5 to discuss the extension. Notices were printed in the newspapers.

A MEETING of the owners and renters of PEWS in ST. MICHAEL'S CHURCH is requested on FRIDAY next, at 11 o'clock, at the Church, to determine on the propriety of enlarging the same.[4]

But on the eventful day only a handful of parishioners appeared, and the meeting was therefore postponed until June 10. Thirty-two members of the parish attended this second meeting.

A Motion was then made and seconded that an enlargement of the Church should take place, agreeable to the plan proposed by Mr. Robert Mills, which together with the various drawings and instructions for the Workmen, was laid before the meeting, by the Vestry and Church Wardens.[5]

The vote went heavily in favor of the extension, 27–5, and immediately steps were taken to begin the work. A committee was appointed, and advertisements for bids inserted in the press.

Contracts for St. Michael's Church

Any persons who may be desirous of contracting for the whole workmanship requisite to the enlargement of ST. MICHAEL'S CHURCH, conformably to the plan and direction

NOTE: *This is the first of what is hoped will be a series of special supplements to the* JOURNAL *of important, hitherto unpublished documentary material. This departure from our standard editorial procedure has been made possible by special financing.*

This material was prepared and an introduction provided by George W. Williams, author of St. Michael's, Charleston, 1751–1951. *It represents a continuation of his scholarly labors as bicentenary historian of that ancient parish.*

to be furnished, are requested to send in their proposals, on or before the first day of July next, to the subscriber, at No. 12 East Bay, of whom the plan and directions may be had. Approved security to be given for the due fulfilment of the contract; the necessary materials will be provided by the Vestry.

George Reid [6]

The Vestry met on July 8 to open the bids for the work on the extension.

A Letter was received from Robert Mills respecting the *Sky Light* intended to be put to the contemplated addition to the Church took the same into consideration and agreed that the information therein requested be sent on to him. Various estimates were presented to the Vestry respecting the enlargement of the Church

VIZ.[7]

Edward Mc Grath's..for Workmanship .....$9455.34 Materials ..... 5960.86.....$	15,416.20
John Mc Farling's for the plaistering & rough casting	1800—
John Dougherty for Stucco Work & materials	3012.52
Walker and Evans.....Bricks &.....	1228.—
Robert Lindsay for Carpenter's Work.....	2557. 4
John Kearney for Stucco Work..(by measurement)	
Aaron Johnson...Bricklayer.....	4059.—[7]

In addition a Committee was named

to wait on Mr. Thomas Bennett Senior, at the request of the Vestry, and to inform him that they, from the high opinion, they have of his public spirit, as also of his great, and general mechanical knowledge and experience, have determined to lay before him the Plan offered by Mr. Mills for the enlargement of the Church, together with the different estimates given in; to have his judgment on the same: and whether any additions, or alterations, are requisite thereto, and also to have his opinion on the estimates and every other information that may tend to the compleation of the work, in the best manner and at the least possible expense.[8]

Mr. Bennett's statement was read in the Vestry August 19, and submitted to the contractor, Mr. Magrath. At the same time there were drawn up "a subscription Paper, and Rules for the government of those, who intended to subscribe for Pews in the contemplated enlargement of St. Michael's Church."

The Vestry took no further action. But as late as October 15, the work was still under consideration when Mills, then in the North, wrote a lengthy report to Charleston on the "Doctrine of Sounds." This early treatise on acoustics is published here in full. It appears from this document that his plans for a barrel ceiling had been rejected. On the theory of the transmission of the voice of the speaker by the reflection of the sound waves to himself and to his hearers Mills suggested a ceiling of a segmental arc, springing from the walls. He conceded the omission of the *oeil-de-boeuf* "as it is rather awkwardly situate; being urged through a kind of necessity." He recommended another method of joining new walls to old, a tongue and groove process solidified after settling by pouring in grout. Mills must have intended to give further attention to minor adjustments in the drawings, for more than one design for the chancel is shown. There is also an obvious inconsistency in the hipped roof and the lofty eastern wall framing the chancel.

In spite of this detailed care and dispatch, Mills' plans were never used. As a matter of fact they were never heard from again. It may have been a lack of funds, objections from the parishioners, or the need for a new minister that rose just at this time that led the Vestry to lay aside plans for the extension; nothing definite is known, but St. Michael's remained its original size. "Only a rabid admirer of Mills can fail to feel that the colonial church had a narrow escape." [9]

The extension of St. Michael's church was by no means a closed issue; it has reappeared in its first form or in the modified form of chancel elongation many times since 1804. Attempts were made in 1810, 1833, 1866, 1886, 1893, and bequests offered in 1949 and 1951 for the same purpose. For one reason or another the work has been postponed on every occasion. Mills would probably not have been disappointed; he admitted, "it is far easier to harm than to benefit church architecture, in the making over." [10]

Mills' documents entitled "Contemplated Addition to St. Michael's Church" are still in the possession of the Vestry and are here published for the first time.[11] They are handwritten on five folio pages 11″ x 16 5/8″ bound together in stiff covers. The "Bill of particulars" for the workmen exists also in printed form, and copies are preserved with the manuscript. The six pages of drawings follow the text. The elevations and sections are colored in yellow, pink, and blue water colors on Whatman paper.

The words enclosed in brackets in the instructions to the workmen are taken from the printed version which Mills may have seen through the press. Several additional "the's" from the printed form have been omitted. The section bracketed at the conclusion of the specifications was concealed by a flap pasted over. The hand is not Mills'.

The South Elevation which includes the steeple constitutes the only known authoritative illustration of the "parapet wall," or "attic order" as Mills calls it, which existed along the eaves from 1789 to 1847.

The paper termed "The Doctrine of Sounds" was written in October, 1804, about six months later. Mills transcribed the first two pages in his own hand; the third page seems to be in the hand of a professional clerk.

Mr. Albert Simons, FAIA, in addition to contributing several valuable suggestions, has provided the annotations to the specifications.

ST. MICHAEL'S CHURCH,
CHARLESTON

Bill of particulars for Workmen in the Contemplated Addition to St. Michael's Church, Charleston So. Carolina

March 1804

LABOURER

Dig out for footing of external Walls 6 feet below the surface level, for foundation Walls to pews 2 feet. The superfluity of Earth therefrom, after the finish of the Building, to be carted away.

BRICKLAYER

Footing of External Walls 6 feet below the surface level, 3½ bricks thick; Foundation Walls to Pews 3 ft. [below the surface level] 9 In. thick. Before you bed the first Course of Bricks in the exterior Walls, let there be laid a floor of 3 Inch sound Plank,[12] from thence under all the Apertures spring Arches, also in the East Wall as many as may be found requisite, these are done with an Intention to prevent the sinking of the Work by taking off much of the incumbent Weight: In connecting the new with the Old Walls, Observe this, to penetrate in an irregular Manner One or More bricks into the old Work an[d] in the manner of dovetailing, Or otherwise fix the new bricks thereunto, taking Care that half the Standing Bricks of the Old Wall shall equally be projected into the new Wall; In order to lesson that propensity of new Work to sink, I would offer this Caution to the Bricklayer to have his Mortar rather of a stronger body and to use it moderately. There is certainly no Necessity for the general practice of using much of this Cement in this Work; but a very great Failing to be expected from it; I presume as a Change has taken place within some Years past in Respect to the Size of Bricks, that Compulsion will induce the Use of a thin bed of Mortar in order to keep pace with the Courses in the Old Walls, Therefore I would propose the Use of Stone instead of Shell Lime, as it soonest obtains a Solid Consistencey & holds more firmly.[13]

I would recommend particularly where the Connection between the Old & New Walls takes place, to Grout each Course of Bricks, (Stone lime being used for this) As the Walls are to be plaster'd, what overflows so as to disfigure them will be of little Consequence; This Method proves an excellent Binder to the Work, The thickness of the Walls in the Superstructure is 2½ Bricks, however in this You are to be regulated by the Old Walls, The Plans & Elevations will point out to you what Apertures are to be made, how many Pilasters & what kind of Entablature are necessary. In place of the close balustrade the Attic Order is to be raised proportionate to what is shewn in Drawings, the height of this must not exceed the first appearance of the Tower out of the Roof which is about the Line of the Ridge of the Pediment. The Walls in the present Balustrade will have to be taken down as far as the Plenith or first Recess forming Pannels, & these if not 18 Inches must be increas'd to this thickness to admit of the double Recesses & projection of Pilasters each half a brick; In throwing the Arch of Altar Niche, Retain its form externally making it Water proof as the General Roof of Church will not cover it, remembering at same time to leave a Circular Aperture near the Crown (See Drawing) not less than 3 feet diameter (& 4 feet if Prudence will admit) for a Sky Light to pulpit, The whole of the Bricks herein used must be sound well burn'd and laid in flemish Bond, no two Coursers to be stretchers.

CARPENTER & JOINER

Lay a floor of sound Three Inch plank for Bricklayer to commence the footing of the outer Walls, being careful to make it level: In framing the Roof for the additional part of Church You are to be governed entirely by the method pursued in that already executed. This in the general is like unto what is shewn in Section, except in the Girder which is to be omitted on account of the Cove, now to be introduced, The Roof is framed with principal Rafters, with King & Queen Posts, Braces, Collar Beams, Purlins, Jack Rafters &c., The Extremity of Roof instead of finishing with a Gable End is to be hipp'd, The Span is about 60 feet, All the Joints bound with Iron Straps. — — —

The flat Cieling now in the Church is to be done away, and a Cove substituted in its place, The Crown of the Cove will rise to meet with the Collar Beam of Rafters. Inch Plank in two thicknesses will suffice for the Ribs, The west of the Cove is to be hipp'd in order that the Sound of the Voice may be thrown down *

The foot of Cove will be the present Plafond[14] of the Cornice; The half Coves under are to be continued correspondent to those already executed What respects the other framing for Floors of Pews, Gallery, half Groins under the latter &c. You are to be regulated (in the manner) by that already done; Prepare for Bricklayer all the Centres for Arches, Batten the requisite Brick Walls for the Plasterer to lath & plaster on; [15]

The Plafond already mentioned is to be continued with the Cove as also the Console Cornice connected with it, The Pannelling &c. to all the Pews is in every thing to resemble that already executed in Church, as also the flooring; The window Frames & Sashes taken out of the East End to be reserved for those wanted on the North Side, those on the South Side must be made & according with the rest, For the Sky light in the Altar Niche, a Conical sash must be made, the diameter of Base not less than 3 feet, but if in throwing the Arch of Niche it can prudently be increased to 4 feet have it so. The Pilasters used in the present Altar niche are intended with the Tables & other connected Ornaments to be again used in the Alteration, they however are to be elevated higher as Section shews, so that the Cornice of their Entablature will form the Impost

of the Arch of Niche. therefore great Care must be observed when these are taken down; The Columns supporting the Gallery are Ionic glued up & fluted; those at present against the Wall to answer for the like Situation in the addition

The site of the present Pulpit and Reading Desk to be altered and Pews erected in their Place, See Plan for this, as also for the distribution & alterations of other Pews.

The proposed Form for a Pulpit is that of a Rostrum, that is, a Platform, inclosed by a balustrade &c. without a Covering as in the old Pulpit, For further Explanation See Section

* Ere you cut the Girder, dovetail stout Braces into the Collar Beams & Queen Posts of the Old Rafters and strap them well with Iron. See Section Letter A

SLATER

In slating the additional Roof to Church You must cut the Slates to accord in Size with those already on the present Roof, this attention however is only required about half Way, as the Attic Wall will hide the rest from the View, & which may be slated in the common Manner, The Slates laid on Laths or Boards & well render'd or bedded in Mortar.

PLASTERER

Lath and Plaster the whole of requisite Walls, Coves, Cielings, Recesses &c. three Coats [of] the same laid smooth and even, [and] properly whitened, The Brick Walls to be battened for Lathing.

STUCCO WORKER

Prepare & fix Trusses for half Groins under Gallery, Modelled after the manner of those already executed in the Church, Run a fancy Ornament of patteras [16] and Pannels over the Altar Niche, inclosing it with a line of Beads answering for an Architrave. Prepare & fix Festoons of flowers over the Square Tables between Pilasters in the Altar Niche, Also Rays of a Sun surrounding Sky Light in same.

GLAZIER & PAINTER

Glaze all the Windows with good clear White Glass, well bedded in Putty and back puttied,[17] Give the Wood Work of Sashes & frames three Coats of White Lead.

PAVER

Continue the Paving of Iles, levelling the Bed with Clay well ramm'd & bedding the Tiles in Sand.

THE ADDITION contemplated to be put to ST. MICHAELS CHURCH according to the Plans here exhibited add 42 pews more to the present Number which give 88 on the lower floor. In the Gallery 12 large Pews will be obtain'd exclusive of a back passage for Benches.

I have propos'd extending the building East, because the present length requires it, and because not without considerable alterations, Inconveniences and encroachment upon beauty, could it be enlarged South.

An Inconsistency is very conspicuous to the Eye of the Observer between the body of the Church and the Steeple, This would be still more obvious were the building elongated, To remedy this Effect, there is propos'd in drawings to elevate the Attic Order as high as where the Tower first rises out of the Roof. From the present Corner of the Church to where it is proposed to be extended, it is 28 feet, this will admit of 2 Pilasters being introduced corresponding with the rest all to about 8 Inches into the Intercolumniation, which will be imperceptible to the Eye in such a Range, & which was necessary to be done to procure a sufficient projection for the Altar Niche the back of which butts against Mr. Johnson's house.

The present Situation of the Pulpit is evidently very awkward, It is proposed to place it opposite the Center Ile, & in the Altar Niche,[18] The Advantage of this is, that the Speaker will not have his Back to any of the Congregation, The Reading Desk will be in a Situation similar to the old one. The Communion Table placed in Front instead of behind the Pulpit; I cannot say that I recollect a precedent to this, however it does not look inconsistent, but rather otherwise with that holy Ordinance, If however it may be objected to, the Pulpit may be brought forward & the Original Method adopted for the Table, but I fear this disadvantage would be the Concomitant of this arrangement, that there would be a disagreeable Echo continually in the Speaker's Ears, not only from his own Voice, but from the Organ—The Objection to having the pulpit placed at the Extremity of the Church may appear reasonable on this Principle, that those of the Congregation of the West End, could not hear. This may be granted if no Alteration is made in the present Cieling, therefore to obviate this difficulty, I would remove entirely the flat Cieling at present in the Church & throw a Cove from End to End. Upon the Doctrine of Sounds, this advanced Defect is surmounted, The old Method of crowning Pulpits with what are called sounding Boards I disclaim, conceiving that instead of their increasing sound they damp it, or in other Words they deceive the Speaker by driving it down into his Own Ears & pulpit where comparatively it is lost, The Canopy of the Pulpit laid down in the Addition is the Crown of the Niche it is placed in; This is the best Receiver & Augmenter of Sound, as from its form it immediately disperses it to the Cove which conveys it to the farthest End of the Church (if any thing) not lessened in loudness —The framing of the present Roof will admit of the Introduction of a Cove without much Difficulty; The written Tables are placed behind the Pulpit as may be seen in the Section, The Light necessary for the Pulpit is obtain'd from above. The Pilasters and other Ornaments used in the pres-

ent Altar Niche will answer again for that in the Alteration, There will be no Change made in the present Roof, that on the addition will be only a Continuation framed and covered in the same manner; All the old Materials taken down may be used again with Safety, for from what I can judge they are as sound as ever. On Account of the Excavations made from time to time in the Ground to be built on, it will be judged prudent to dig for the footing of the Walls at least as deep as the graves were dug, In order moreover to insure the stability of the foundation, I have directed the Workmen in the Bill of Particulars to throw Arches, not only for the support of the incumbent Weight, but to counteract that natural propensity which new Work has of seperating from Old. The foot of the said Arches I have Ordered to b[illegible] founded on a bed of 3 Inch plank which will indubitably prevent one part from sinking without the whole (which is not reasonably expected to take place.

When it is intended to commence the Erection of the Additional Walls, I would, in Order to insure the Stability of the whole building propose, That the present East Wall should stand until the additional Walls are compleated & the Roof covered; For if, in the first place You begin by razing the Wall at the East End, some Danger may be apprehended, that the Roof might spread & overthrow the Walls, these then being deprived of their Binder, Therefore let not this be taken away (except what little is necessary to connect the new and Old Roofs) until the whole exterior Walls and roof are up. I would also recommend to you that an Attention be paid to the Bill of Particulars preceeding this, when you contract with the Bricklayer relative to the use of Stone Lime, instead of Shell Lime, The Superiority of the first above the last always gives it the Pre-eminence, but particularly so in the Conjunction of new & Old Work.

[I have calculated on the different Pieces of Work, the highest Prices and if my measurements have been as correct, as have been my Desire and Attention to have them so, I will not hesitate in saying that the fund requisite to compleat this addition shall not exceed Dlls. 10,000 which will be less than One half of what the obtain'd Pews will bring, estimating $400. Each for the Lower pews & $250 Each for those in the Gallery.

Charleston South Carolina March 1804
Robert Mills]
Architect

		Additional Pews, below	ft.	In.		ft.	In.
20	Pews.	Length	9.6		by	3.0	
10	"	"	5.6	"		4.6	
2	"	"	5.6	"		3.6	
8	"	"	5.3	"		5.3	
2	"	"	5.3	"		7.—	
42							

	Ditto in Gallery	ft.	In.		ft.	In.
4	Pews.	13.9		by	3.6	
8	"	10.6	"		3.6	
12						

Communication rec[d] from Mr. Robert Mills on the subject of the Ceiling of St. Michael's Church & on the Doctrine of Sounds.

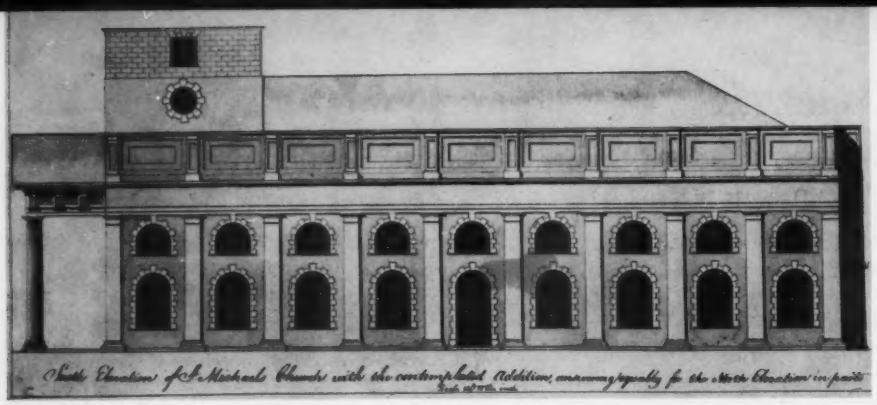
15th Octr 1804

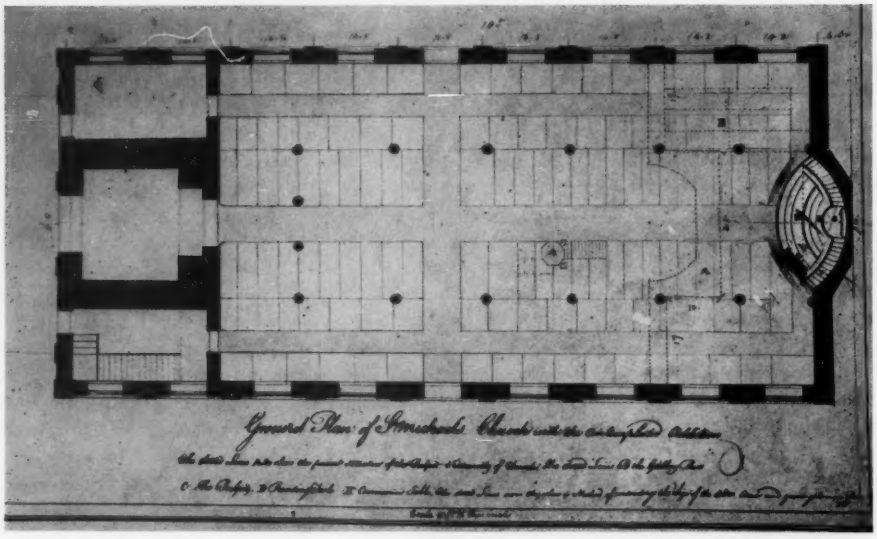
Upon second considerations my dear Brother, I am satisfied in learning, that it is the resolve of the committee of St. Michael's church *not* to introduce a centre cove by cutting the girder, BUT their substitute however, I cannot approve of, neither will it have the desired effect of conveying the voice to those at the further end of the room. Let us enquire into the manner in which sound is propagated or conveyed.

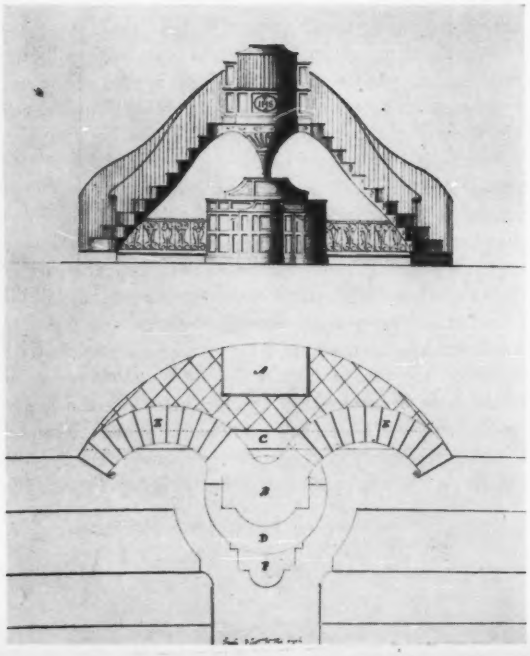
1. Sound has some of the properties of light. It is radiant, that is, it proceeds when excited from one centre, in every possible direction in which it meets with no obstruction.
2. It is reflected, and follows the general laws of reflection, its angle of *incidence* and *reflection* being equal. Its reflection is called *Echo.*—
3. It is probably also refracted. Its peculiar properties are not so well understood—its *encrease* by the vibration of the substances thro' or over which it passes, its connection with mathematical forms &c &c. To our present enquiry the radiant & its reflected conveyance are sufficient.

Sound is known to be considerably *slower* in its progress than *light,*—some time elapses before a sound emitted is heard at a distance. When reflected or echoed, a still longer space is travelled over before it is heard, a space equal to the sum of the distance of the origin of the sound and of the hearer, from the reflecting SUBSTANCE surface.

With these principles in your mind, you will easily understand on what considerations the preference of one form of room or space over that of another depends, and also upon what grounds the choice of the speaker's position must be made. The ease of the speaker will be best consulted, if he be placed in a position in which his own voice returns to him by reflection in the loudest and distinctest manner. For though the sound emitted within the mouth certainly affects the auricular organs of the speaker, a very little experience is necessary to prove, that we judge of the sound of our own voice by its echo. Persons accustomed to speak much in the open air, where the echo is weak, always bawl in company. It follows therefore, that if a hollow Globe were constructed, a speaker placed in the centre would receive echoes from every point of the surface at the same moment, that is, all the echoes would be consonant and primary; of course he would speak with the

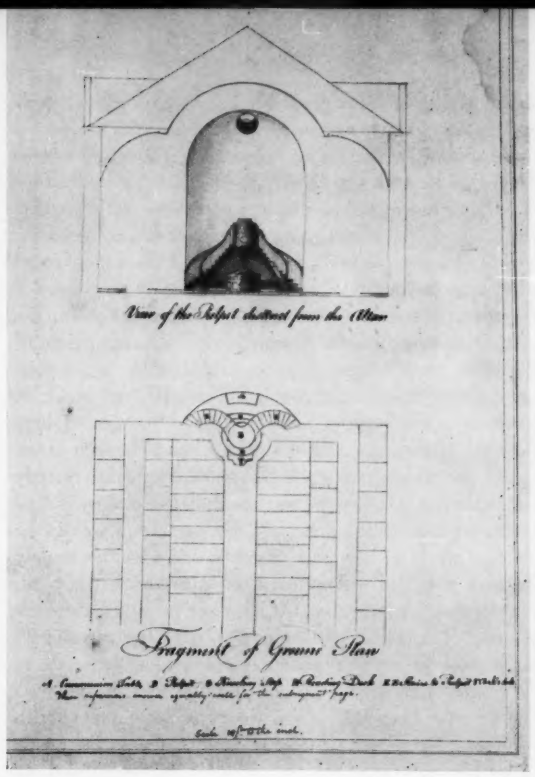


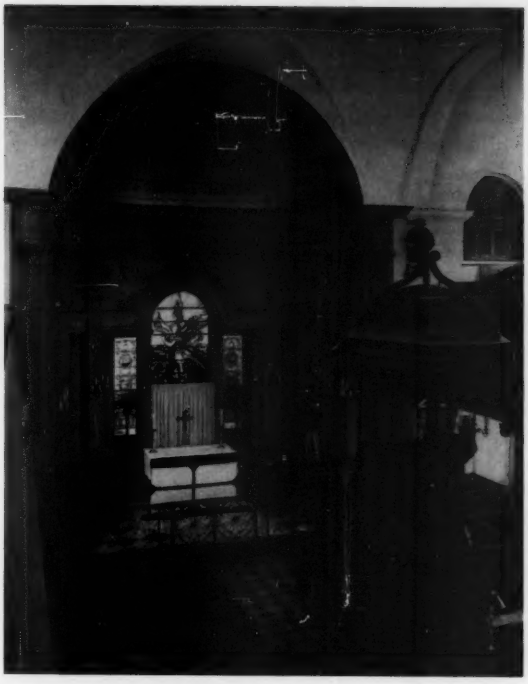




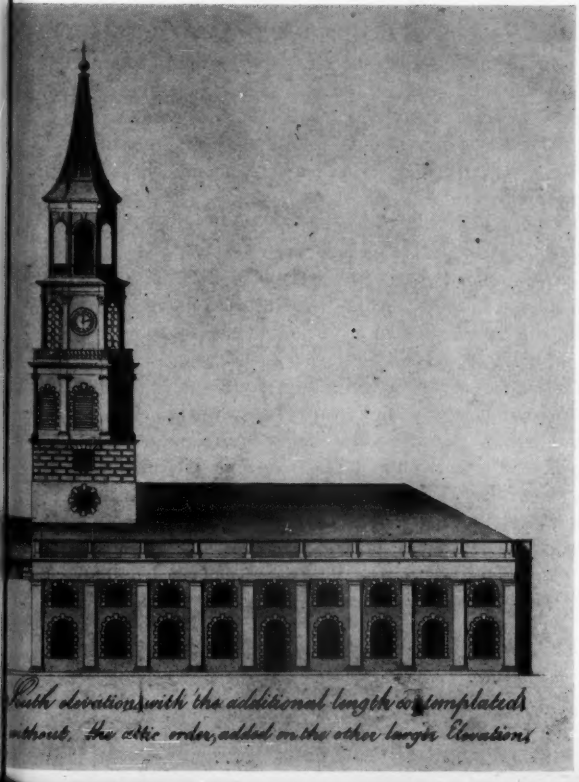
ROBERT MILLS' DRAWINGS
FOR HIS PROPOSED ADDITION TO
ST. MICHAEL'S, CHARLESTON.

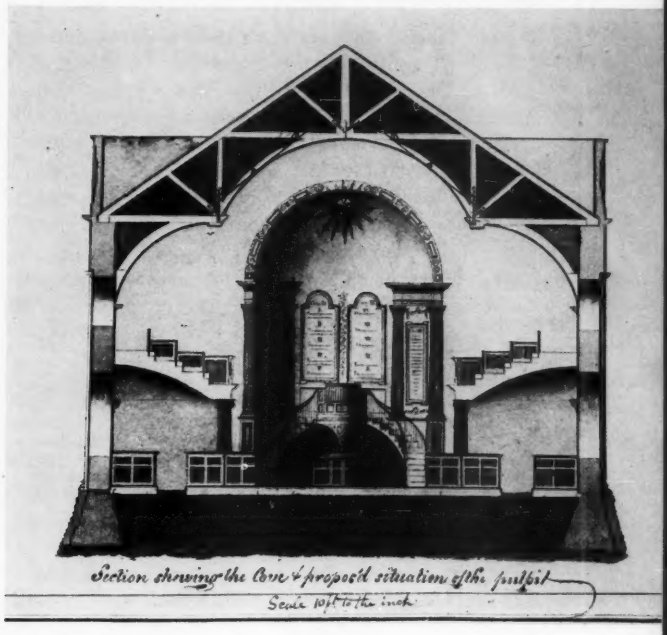
(Reproductions by C. R. Banks)





The chancel of St. Michael's today. (*Reilly photograph*)


South elevation with the additional length contemplated
without the attic order, added on the other longer Elevations



greatest ease. Placed in any part of the surface of the globe he would 1st. receive one echo from the point exactly opposite 2d. consonant echoes, but secondary, (i.e. twice reflected), from all the points of a circle being in the segment of the globe of 120.°. 3d. At right angles with the axis; tertian, from all the points of a great circle which would pass thro' the centre at right angles with the axis. 4th. consonant echoes which have travelled round the globe in the sides of an infinite number of polygons of an infinite variety, in the number of sides.

The time that will elapse before the first echo is received by the speaker, will be, in the proportion of twice the diameter. The time that will elapse before the echo which has travelled round a polygon of an infinite number of sides (that is a Circle) will be in proportion of its circumference. Therefore if the first echo be heard in two seconds, after the sound has been emitted, the last will be heard 1.14 second afterwards, and between the first and the last there will be heard an infinite number of other echoes. This effect is called a *buzz*, and as the ear is sensible of the most minute divisions of time in the succession of sounds in a globular room of about 100 ft. diameter, there would be a great buzz, as the last echo would be heard 0.114 or one tenth of a second and more after the first. Besides these echoes, which will diminish in loudness in proportion to the number of reflections they have undergone, before their arrival at the ear, there will be a multitude of others, being the echoes of the others, gradually growing weaker and weaker but still continuing the buzz which will thus be long before it entirely dies away—If the place of the original sound be between the centre and the surface of the globe the consonance of the echoes will be more perfect, in proportion as this place is near to the centre. As globular rooms cannot however be constructed, the room consisting of part of a globe and of a cylinder will, of practicable rooms, be that in which the speaker will be most at his ease; for it will yield the greatest number of consonant echoes, as you will readily understand by forming a diagram.

The radiation of the sound issuing from the speaker's mouth may be compared to a cone passing thro' the cylinder of such an angle that its angle of incidence shall carry a circle of secondary and consonant echoes to the ear of the speaker. The globular ceiling will produce another circle of similar echoes.—A cylindrical room with a flat ceiling will have the same effect as to the echoes from the walls and also to those from the ceiling if the speaker be placed in the axis of the room.

The effect will be diminished in proportion to the distance of the speaker from the axis.

The most common rooms and in many respects the most convenient is the square or oblong quadrangle. It is the cheapest in its construction and adapts itself best to all manner of communications with streets adjacent buildings and contiguous apartments. If such a room have a cylindrical ceiling being either a semicircle or a segment in its section, it will have a great advantage over the same form covered with a flat ceiling *especially* if the *speaker* be *placed* in *its axis*. In this situation his voice will be assisted by a line of primary consonant echoes, in the perpendicular section of the ceiling exactly over him. As to the *quadrangular* room with a *flat* ceiling it is, as *theory* and *experience* teach us the *worst* that can be constructed, unless it be the same room with a globular dome cut into the ceiling the semidiameter of which is less than the height of the room, as it commonly is contrived. The construction creates with *infallible* certainty a loud and intricate *buzz*. Of the success OF THOS with which this may be effected there is a grand specimen at Boston which you have seen in the Representatives chamber in the state house, to remedy which they have lowered a large sounding board.—As simplicity in architecture generally produces beauty so is the simplest mode of producing an intended effect commonly the best. A cylindrical ceiling is of those that are not flat, the simplest and cheapest. Other contrivances have been thought of to obtain the same end, as elliptical ceilings, coved ceilings, sloping ceilings, sound boards &c &c As to the propagation of sound an *Ellipsis* destroys it in as far as consonant echoes falling on the same point are able to produce it. *Coves* are perfectly *useless*, unless their axis be as low or lower than the situation of the speaker or hearer. *Slooping* ceilings have been adopted in Theatres and not without effect, but are inapplicable in a church. *Sound boards* are not useless to the *speaker* and the *neighbouring hearers* but do nothing for those at a *distance*.

The same rooms in which it is easy to speak are still better adapted to the distinctness of hearing. Every echo that is travelling back to the Speaker passes some hearer on its way, and arrives sooner, more constantly and more forcibly, for the hearer receives the original voice later and the echo sooner—In a quadrangular room with a cylindrical ceiling each hearer, if the speaker be in its axis, will be benefited by a line of consonant echoes from the Ceiling—

Upon this principle I would recommend to the Committee not to trouble the Girders, but to remove the side coves thro' out and stretch a cylindrical ceiling of the Segment of a circle in its section, as is shewn in the drawing, heading this Letter; according to the axiom precedingly advanced, the Speaker, if he be placed in the *axis*, will have his voice assisted by a line of primary consonant echoes in the perpendicular section of the Ceiling exactly over him, and as *sound* is possessed of the properties of *light* that is, *radiant*, every person in the Church will hear distinctly the words of the Speaker—The feet of this arch'd ceiling must be raised about 16 or 18 inches above the crowns of the windows and a cornice run under them.—The Methods of making & bracing this ceiling are demonstrated in the drawing.—The ribs may be of inch boards doubled, cross

jointed and nailed together, as I have directed in the dome of the Circular church, Afterwards upright pieces nailed against them and against the Girde[r]s, joints &c.—For producing the desired effect this kind of ceiling is the best, and can be executed at the *least expense*, and is capable of being ornamented in the most beautiful manner, either by broad fret bands, sunk even with the surface or pannelled. —If this method should be approved of, I will very readily give them full drawings and directions (provided I receive my papers relative to the Church, left in Charleston,) Ideas flowing from the dictates of nature, will clearly point out the advantages of this kind of ceiling (under present circumstances) above any other for the propagation of sound.—If this Cylindrical ceiling is executed it will have a most beautiful effect—I expect you will shew these Ideas to the committee—They may be of use to the Committee of the independent Church, if they have a thought of surmounting the Circular room with an *Eliptical* dome—the confusion of echoes, creating what is called a buzz will be the consequence, if they do, as I have precedingly noticed.

In the conjunction of the new and old walls in St. Michael's Church, I believe I might offer a better method of doing it, which is by making a groove or Channel in the middle of the old wall from Top to bottom—and making a tongue in the new wall to let into this Groove, without any mortar, so that if any settling should take place, the Settlement should be equal at both extremities of the new wall; after the Settlement is supposed to take place let them pour in, from the top, *grout*, to fill up the crevices and cement the [walls] together.—I am not sorry that they have rejected the Sky light, in the crown of the niche over the altar as it was rather awkwardly situate, being urged through a kind of necessity—If it is not their intention of commencing the addition to the Church this Season, I think it would be a good method to send this way for as many sound common bricks, as would answer for the outer and inner surface of the walls for plaistering and rough casting on; as without this for the outer surface they would be obliged to wait 12 or 18 Months, before they could rough cast it, from the misfortune of the bricks in Charleston having such a quantity of nitre in them, which induces the plaister to scale and drop off—The inner surface of the wall would be obliged to be *battened* to receive the plaistering, from the same evil. You have received long ere this, no doubt, the detail of the estimate I made of the Expence of putting the addition to this Church. I am sorry to find such wide differences between this and other estimates. If I have overlooked any part, I hope the situation I was in will excuse me. If I have been wrong in the prices My being ignorant or mislead by communicators of the reigning prices, is the cause—the Inconvenience I labour under, of being absent, is very great—&c. &c. &c.

(Words which appear in small capitals were marked out on the original manuscript.)

1. H. M. P. Gallagher, *Robert Mills* (New York, 1935), p. 82.
2. Robert Mills, *Statistics of South Carolina* (Charleston, 1826), p. 406.
3. Minutes of the Vestry of St. Michael's Church, I, p. 298.
4. *The* (Charleston) *Times*, April 30, May 1, 2, 3, June 6, 7, 8, 9, 1804.
5. Minutes, I, p. 301.
6. *The Times*, June 20, 22, 25, 27, 1804.
7. Minutes, I, p. 303. Edward Magrath was a Charleston architect and builder with several distinctive buildings to his credit already. He had made in 1801, various minor repairs and alterations to St. Michael's. *Cf.* B. St. J. Ravenel, *Architects of Charleston* (Charleston, 1945), pp. 65–68.
8. Minutes, I, p. 304. Thomas Bennett was another prominent architect of Charleston. *Cf.* Ravenel, pp. 79–84.
9. Ravenel, p. 118. *Cf.* also for the account of Mills, *ibid.*, pp. 114–133.
10. Gallagher, *loc. cit.*
11. *Cf.* for similar plans: S. Lapham, Jr., "Architectural Specifications of a Century Ago," *Architectural Record*, March, 1923, pp. 239–244.
12. *I. e.*, wood mud sills. These planks, "six feet below the surface level," would be constantly wet and would not rot. Similar mud sills were discovered under the foundation of the Holmes House, built ca. 1820, on the site of Fort Mechanic on East Battery in Charleston, during excavations made in 1920.
13. The mortar used in building this church was made with lime obtained by burning oyster shells. Mills recommends the quicker setting and stronger binder obtained from calcined stone.
14. *I. e.*, soffit, or undersurface; not in current use today. From time immemorial the English have borrowed architectural terms from the French and Italian languages.
15. Mills directs the carpenters to provide furring strips to which lathing is to be nailed. A close examination of the surface of the present interior plastering and its relation to the moldings of the cornice at the base of the ceiling cove reveals that when first built the walls were not furred and lathed but that the interior plaster was applied directly to the brickwork. This was the custom in England and in earlier colonial buildings but was found unsatisfactory on account of condensation and dampness.
16. *I. e.*, discs. These are visible in the "Section showing the Cove and propos'd situation of the pulpit."
17. Putty is to be placed not only along the edges of the glass but also along the inner side of glass to form a water-tight seal. This is still good practice today.
18. The dominance that Mills gives to the pulpit at the expense of the altar is consistent with the planning of his other churches which are primarily auditoria. This is readily understood when we remember that Mills was a devout Presbyterian. His graceful design for the pulpit for St. Michael's was subsequently adapted on a smaller scale in his Bethesda Presbyterian Church at Camden, S. C. (Ravenel, *op. cit.*, p. 118).

BOOKS

CARROLL L. V. MEEKS, *Editor*
Yale University.

This department will endeavor to note from time to time recent books which merit informal comment of some sort. Readers are invited to express their views, to volunteer praise or condemnation, and to alert the editor to choice or obscure items.

Knud Millech and Kay Fisker, *Danske Arkitekturstroemninger, 1850–1950* (Copenhagen, 1951).

This magnificent pictorial and critical survey of a century of recent architecture was published to commemorate the hundredth anniversary of the Ostifternes Kreditforening which has for so long been financing Danish Architecture. There is a short English summary. Its 365 pages, exquisitely printed, lavishly illustrated, thoroughly record the architectural currents of a prolific century. From jacket to index it is a high watermark in the history of architectural book-making—fully the equal in quality of that other recent Danish book, Steen Rasmussen's *Towns and Buildings* (Harvard University Press, 1951).

How splendid if more corporations would celebrate their anniversaries similarly with documents of equal competence and utility!

C.L.V.M.

H. F. Lenning, *The Art Nouveau* (The Hague, 1951).

In 142 pages and 54 illustrations Mr. Lenning has given us the most complete and detailed monograph on the Art Nouveau to date. In addition to much new material, there is an excellent guide to contemporary periodical publications and an interesting, readable text. Unfortunately for scholarly thirst, Mr. Lenning has limited himself to the years 1895–1905 and to Belgium and France. He has also claimed too much for his decade and his heroes. It will not convince many that these years and these men form *the* "indispensable bridge between the nineteenth century's eclecticism and the twentieth century's International Style." The connections were certainly more numerous and of longer duration than this. The question of Victor Horta's sources and his claim to priority is not discussed, nor is the ubiquitous "stilo floreale" and its greatest exponent, Giuseppe Sommaruga, brought into relation with Van de Velde or Mackintosh. The problem of Louis Sullivan and his "independent style" does not come up.

An Art Nouveau architecture is suggested, but not substantiated; it does not stand on its own feet, independent of ornament on one side, nor from other experimental architecture on the other.

There are numerous faults in printing and format which are pardonable in an English text printed in Europe, and do not materially lessen the value of the book, though it may be difficult for many readers to identify Raimondo D'Aranco as d'Avonco.

It will take two or three more monographs such as this one before we can feel that the ground-work has been laid for the synthesis and evaluation which Lenning has attempted prematurely.

C.L.V.M.

A. Hyatt Mayor, *Giovanni Battista Piranesi* (New York: H. Bittner and Co., 1952) 41 pp. & 138 Plates.

The great Italian engraver, so well-studied some years ago by Henri Focillon and A. M. Hind in works now long out of print, has been fortunate once again in the publisher and critic who present him in his first American appearance. The former has provided the most copious selection of plates, and the best reproduced, that has ever appeared in French or English publications. Mr. Mayor, the Curator of Prints at the Metropolitan Museum, introduces them with an agreeably informed, provocative, and discriminating preface. In so few pages he succeeds in evoking the age, Venice and Rome in the middle years of the eighteenth century, in projecting against that background an image of Piranesi as a man deeply concerned with the creation of architecture in the present and with the recreation of the archaeological past, and in tracing his influence on subsequent building and interior decoration through the early nineteenth century. For all this his apparatus of quotations from past critics, his "Hints to the Collector" of the prints, his chronology, and selected bibliography provide the essential facts. In the succession of the plates, as in his development of Piranesi's life, he helps the amateur to understand the qualitative significance as well as the chronological order of the *Prisons*, the *Views of Rome*, the various archaeological and antiquarian studies, and the relation to these of Piranesi's rare and only lately recovered drawings. The architect and sculptor will be especially interested in the clear photographs of his only surviving construction, the Church of Santa Maria Aventina for the Knights of Malta, with its turbulent altarpiece and stucco ceiling, so unexpectedly baroque for 1765.

GEORGE H. HAMILTON
Yale University

SAH NEWS

THE ANNUAL MEETING

The annual meeting of the Society of Architectural Historians was held jointly with the College Art Association at Wade Park Manor, Cleveland, Ohio, January 29–30–31, 1953.

Philadelphia was chosen as the place for the 1954 meeting.

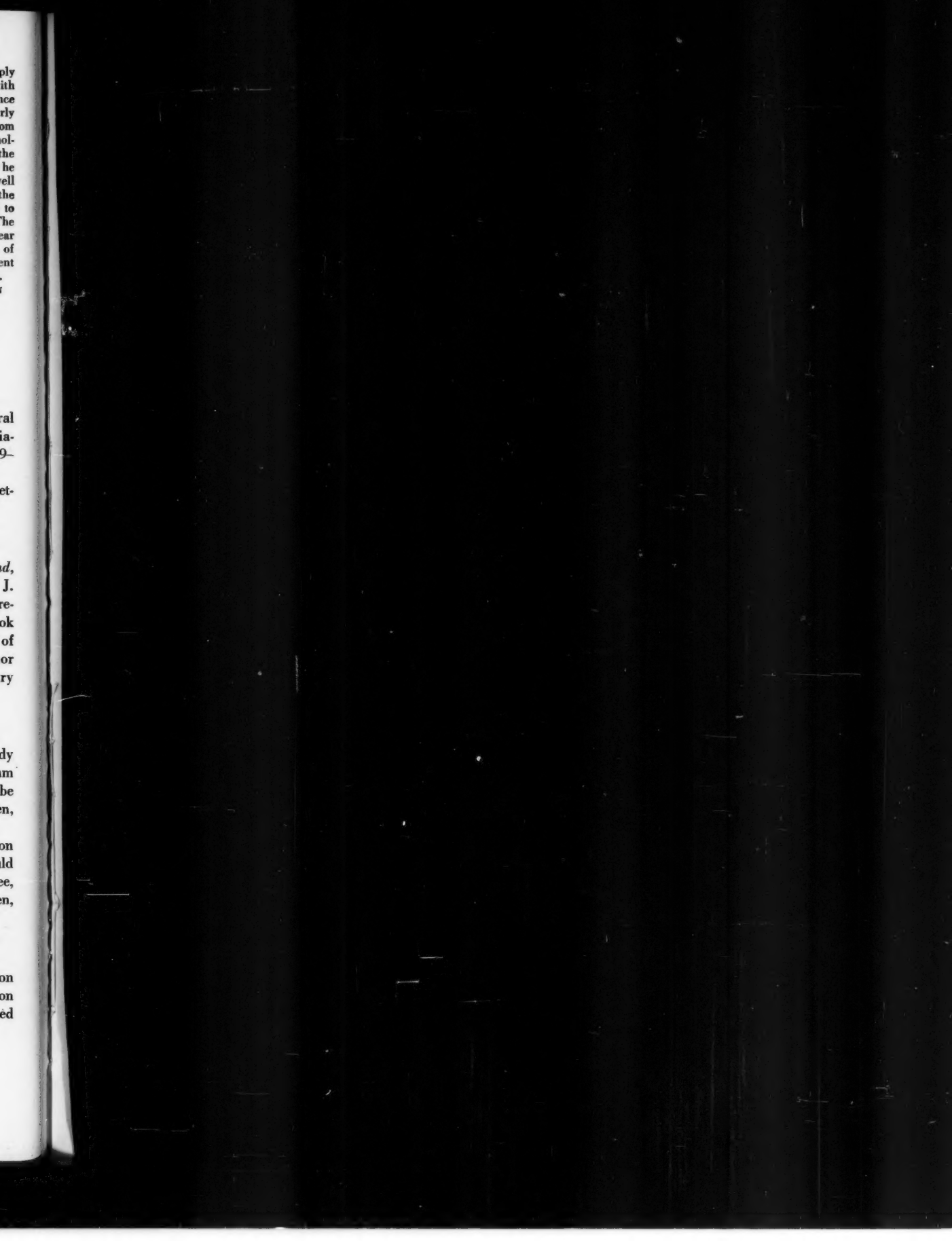
THE BOOK AWARD

The Architectural Heritage of Newport, Rhode Island, 1640–1915, by Antoinette F. Downing and Vincent J. Scully, Jr. (Cambridge: Harvard University Press), received the annual award given by the society to the book voted the outstanding contribution to the literature of architectural history published by an American author during the calendar year just ended prior to the January meeting.

ENGLISH SEMINARS REPEATED

The second National Trust summer school for the study of the great houses of England will be held at Attingham Park from July 8 to July 29. The over-all charge will be $185. Applications should be addressed to The Warden, Attingham Park, near Shrewsbury, England.

The more technical and practical course in restoration is that given at York. For full information one should write The Secretary, Academic Development Committee, York Civic Trust, St. Anthony's Hall, Paeseholme Green, York, England.

REGENCY BRIGHTON AT BOSTON

The Boston-Cambridge Chapter of the Society met on Tuesday, February 10, at the Society for the Preservation of New England Antiquities to open the jointly sponsored exhibition of Regency Brighton architecture.